

Final Crooked River Gap Fencing Environmental Assessment

**EA Number: OR-054-02-070
Case File Number: GS-10F-0209L**

**Prepared For:
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May 2003

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1.0 CHAPTER 1. INTRODUCTION: PURPOSE AND NEED FOR ACTION

1.1 BACKGROUND

This Environmental Assessment (EA) has been prepared for the Bureau of Land Management (BLM), Prineville District's Crooked River Gap Fencing Project. A gap fence is a portion of fence strategically placed between natural, geographic barriers, which prevent the entrance of livestock or wild horses to a specific area. For example, a gap fence would be placed between steep ravine walls to block access to the bottom of the ravine; the fence is not needed on the ravine walls, as most livestock would not be able to negotiate the steep terrain. This EA is an analysis of the potential impacts resulting from the implementation of the proposed action or the alternatives to the proposed action.

Along the North Fork Crooked River, cattle are accessing and remaining near the river during summer months. Season-long use of riparian vegetation by cattle results in overgrazing of the riparian vegetation that promotes stream bank instability, channel widening, and increased stream temperatures. Additionally, season-long use of this type is inconsistent with management direction as outlined in the Brothers/LaPine RMP/EIS and the North Fork Crooked Wild and Scenic River Management Plan (USDI, 1993)

Within the South Fork Crooked River corridor, horses from the Liggett Table Wild Horse Herd access the river all year long. This type of prolonged access results in overgrazing of riparian vegetation, leading to stream bank instability, channel widening, and increased stream temperatures. The Herd Management Area for the horses does not include the South Fork Crooked River corridor as outlined in the Brothers/La Pine Resource Management Plan (USDI, 1989).

The Prineville District Central Oregon Resource Area has a need to comply with existing land use planning documents, including the Brothers/LaPine RMP/EIS North Fork Wild and Scenic River Management Plan, BLM Manual H-8550-1, Interim Management Policy and Guidelines For Lands Under Wilderness Review, and BLM manuals and guidelines for riparian management as well as other resource values.

Along the North Fork Crooked River the proposed gap fences would be located on public lands and private lands within Townships 15 and 16 south, Ranges 21 and 22, Willamette Meridian (W.M.)(Figures 1 & 2). Along the South Fork Crooked River, the proposed gap fences would be located on public lands within Township 18 and 19 South, Ranges 22 and 23 E., W.M. The specific proposed gap fence locations are shown on Figures 3 and 4.

Figure 1. Project Area

Figure 2. Project Locations

Figure 3. North Fork Fence Locations

Figure 4. South Fork Fence Locations

1.2 PROPOSED ACTION

The proposed action is to:

- a) Construct 10 new sections and reconstruct 2 sections of gap fencing in various locations along approximately 17 river miles of the North Fork Crooked River. Approximately 2.5 miles of actual fence construction is proposed within or adjacent to the river canyon. (Approximately 1.4 miles of fence would be constructed on BLM public land and approximately 1 mile of fence would be constructed on adjacent private land. Approximately 1.3 miles on the east side and 1.2 miles on the west side of the river canyon.). The proposed gap fence locations are shown in Figure 3.

- b) Construct 2 new sections and reconstruct 2 existing sections of gap fencing in various locations along approximately 14 river miles of the South Fork Crooked River. Approximately 0.6 miles of new construction and approximately 0.6 miles of repair of gap fencing is proposed within or adjacent to this river canyon area. Proposed new construction and fence repair would be located on BLM public land, west of the South Fork Crooked River. The proposed gap fence locations are shown in Figure 4.

Constructed sections of fence will connect naturally occurring geographic barriers (cliffs) that currently have gaps between them. Once in place fences will exclude the use of existing gaps by wild horses and livestock for accessing the river bottom.

1.3 NEED

The need for the proposed action is to comply with directives set forth in various management plans. This compliance comes in the form of maintaining or improving riparian vegetation along the North and South Forks of the Crooked River by limiting access of wild horses and livestock to the canyon bottom.

Within the North Fork Crooked River cattle are accessing the river and remaining adjacent to the river during summer months. Season-long use of riparian vegetation by cattle results in overgrazing of the riparian vegetation that promotes stream bank instability, channel widening, and increased stream temperatures. The current accessibility of livestock to the river bottom is inconsistent with management direction to protect and enhance riparian meadows, which is an outstandingly remarkable Wild & Scenic River value, as outlined in the North Fork Crooked Wild and Scenic River Management Plan (USDI, 1993)

Within the South Fork Crooked River corridor horses from the Liggett Table Wild Horse Herd access the river throughout the year. This type of prolonged access results in overgrazing of riparian vegetation, leading to stream bank instability, channel widening, and increased stream temperatures. The Herd Management Area for wild horses, as outlined in the Brothers/La Pine Resource Management Plan (USDI, 1989), does not include the South Fork Crooked River corridor.

1.3.1 Past, Present and Future Uses on Public and Private Land

Past uses – BLM Land

Hiking, hunting, rock hounding, fishing, camping, etc. have occurred in the North and South Fork Crooked River area in the past.

Historically, before the area was designated a WSA it was logged. Many of the two track roads were created in the 1950's through the early 1970's. Logging on these public lands was accomplished through a light thinning of commercial sized trees that were in declining health due to insect infestation or disease.

Livestock grazing has historically occurred in the area. Few changes have been made to the grazing management activities of the area.

Past uses – Private lands

Hiking, hunting, rock hounding, fishing, camping, etc have customarily occurred on private lands in the past.

Timber harvest has been an activity in the past. Historically, the private lands in the area have been logged more than the surrounding public lands.

Livestock grazing has historically occurred in the area. Few changes have been made to the grazing management activities of the area.

Present uses – BLM land

Hiking, hunting, rock hounding, fishing, camping, etc presently occur on both the North and South Fork areas.

Livestock grazing occurs on several allotments on BLM lands. Descriptions of these allotments can be found in Sections 1.3 Need and 3.6.2 Livestock of this EA.

Present uses – Private lands

Hiking, hunting, rock hounding, fishing, camping, etc presently occur on the private land in the area of the proposed project.

One of the present uses on private land continues to be timber harvest. The Woodward Company harvests timber on private lands. Generally they take the overstory and leave the understory to allow the forest sufficient regeneration materials.

Livestock grazing currently occurs on private lands in the vicinity of the proposed project area.

Future uses – BLM lands

Hiking, hunting, rock hounding, fishing, camping, etc will continue in these areas, as they have in the past.

It is expected that livestock grazing will continue in the future much as it has in the past, with few or no changes.

It is unlikely that logging would occur within the North Fork WSA in the future even if the WSA designation were removed. There is a project outside of the boundary of the WSA, above the North Fork WSA to the northwest called the South Boundary Timber Sale, which will begin in the next three years. The project is 523 acres of proposed timber harvest. According to Steve Castillo, BLM Forester, there is a possibility of short-term sedimentation downstream of the project, in the North Fork WSA. Eventually, this timber project will lead to long-term benefits to the watershed. This project is analyzed in depth in the South Boundary Forest Management Project Environmental Assessment, EA# OR-054-98-049.

Future uses – Private lands

Hiking, hunting, rock hounding, fishing, camping, etc will continue in these areas, as they have in the past.

There are several 20, 40 and 80-acre plots of privately owned land near the WSA that currently do not have any type of commercial timer harvest activities. However, the landowners have the option of conducting timber-harvesting activities. If these land owners wanted to harvest timber they would need to apply with the Oregon Department of Forestry for a logging permit and submit a logging plan. As part of the logging plan, landowners must complete some sort of reforestation activities. These activities can consist of leaving enough trees so that the forest can regenerate or actually planting seedlings.

It is expected that livestock grazing will continue in the future much as it has in the past, with few or no changes.

1.4 PURPOSE

The purpose of this project is to eliminate unmanaged livestock and wild horse access to the riparian areas of the North and South Forks Crooked River. To comply with the Brothers/La Pine Resource Management Plan the Proposed Action will incorporate the following objectives:

- Protect or restore natural functions of the riparian areas. Restore or improve riparian areas to achieve a healthy and productive ecological condition for maximum long-term multiple use benefits and values. Use management practices that accelerate riparian and water quality improvement such as season-of-use grazing, sequential annual rest treatments, and riparian pastures. (Brothers/La Pine RMP, pg. 98)
- Maintain or improve ecological status on all grazing allotments and meet management goals on those allotments (Brothers/La Pine RMP, pg. 76-79). Limit livestock use to authorized areas, seasons of use, and Animal Unit Months

(AUMs). Specific allotment management goals for the North Fork Crooked River allotments are:

- ❖ North Fork Allotment (0053): Management goals for this allotment includes maintain ecological condition, stabilize or improve watershed condition, improve riparian habitat, maintain and improve winter range for mule deer and/or antelope, improve forage quality for livestock and wildlife, maintain or improve habitat for mule deer and/or antelope, maintain or improve waterfowl habitat, and maintain riparian habitat.
- ❖ Rabbit Valley (0050): maintain and improve ecological condition.

Specific allotment management goals for the South Fork Crooked River allotments are:

- ❖ Camp Creek (0064): improve ecological condition, stabilize or improve watershed condition, improve riparian habitat, improve deer winter range, increase availability of livestock forage.
- ❖ Dagus Lake (0056): maintain or improve ecological condition, improve riparian habitat, maintain or improve winter range for mule deer and/or antelope.

Brothers/La Pine RMP, pg. 74-79

Maintain wilderness characteristics in the Wilderness Study Area, according to the interim management policy for Lands Under Wilderness Review (H-8550-1) and relevant BLM memorandums regarding new range development in WSAs.

- Maintain Outstandingly Remarkable Values (ORVs) as described in the April 1993 North Fork Crooked River Management Plan and the Wild and Scenic Rivers Act for the North Fork Crooked River (Wild classification).
- Maintain visual quality of both the North and South Forks of the Crooked River according to the BLM Visual Resource Management (VRM) direction for WSAs.

1.5 SCOPING OR CONSULTATION WITH GOVERNMENTS OR TRIBES

The following governments, agencies and organizations have been contacted about this environmental assessment:

U.S. Fish and Wildlife Service
Oregon Department of Fish and Wildlife
The Burns Paiute Tribe
Confederated Tribes of the Warm Springs Reservation of Oregon

Comments regarding the proposed action that have been received from any of the above entities are included in Appendix E.

1.6 RESOURCES TO BE EVALUATED

The resources to be evaluated associated with the proposed action are as follows:

Soil

Erosion, soil compaction, and rutting could be possible impacts of the proposed action.

Sensitive Plant Species

Fence construction could impact sensitive plant species.

Visual Resources

The introduction of new visual elements into the viewshed could alter the existing form, line, color and texture that characterize the existing landscape.

Wildlife

The proposed fence construction would increase the presence of obstacles that could potentially injure and disrupt movement patterns of big game animals.

Construction of the proposed gap fencing could lead to improved riparian habitat and forage potential for wildlife.

Sensitive Wildlife Species

Fence construction may disturb eagle roosting sites, may displace eagles, and could cause an increase in mortality of the sage grouse.

Wild Horse and Livestock Grazing

Horses and cattle are overgrazing the riparian corridors. Without fencing improvements riparian areas cannot recover.

Riparian/Stream Channel Conditions, Water Quality, and Fisheries Habitat

Construction of the fence sections may promote recovery of riparian vegetation including herbaceous and hardwood species, and improve stream channel conditions within the project area.

Construction of the fence may improve water quality (temperature) downstream of the project area by allowing riparian vegetation to recover.

Improved water quality would occur as bank stability improves, the stream channel narrows, and stream shade increases within the project area.

- Riparian hardwood species within the project area are limited in abundance and vigor from both historic management of the area for livestock grazing and by current inadequate fencing to exclude wild horses and livestock that are using adjacent areas. Fencing off livestock and wild horse access from the project area would improve the success of management focused on improving riparian vegetation and channel conditions along reaches of the North and South Forks of the Crooked River. Riparian vegetation would no longer be subject to pressures resulting from browsing or grazing animals and allowed to increase in both abundance and vigor along stream reaches.

- Water quality as related to water temperatures within the North and South Forks does not currently meet state water quality standards.
- Reaches of the North and South Forks indicate summer-time stream temperatures exceed the 17.8°C (64°F) criteria for salmonid rearing applicable to the North and South Forks Crooked River. In addition, the South Fork Crooked River also exceeds the 12.8°C (55°F) criteria for salmonid spawning applicable from October 1- June 30. These criteria are set by the State of Oregon (Oregon Department of Environmental Quality) and approved by the Environmental Protection Agency (EPA). High water temperature negatively affects the habitat quality for redband trout and other aquatic species in some reaches of the North and South Forks Crooked River.
- Construction of fence sections in the North and South Fork Crooked River areas is expected to improve habitat for native redband trout specific to pools, spawning beds, or migration patterns. The project is expected to improve habitat conditions by increasing riparian vegetation and bank stability, narrowing the stream channel, and increasing stream shade along stream reaches. As bank integrity improves and the channel narrows and deepens, habitat conditions are expected to improve for redband trout.

Cultural resources

The construction of the fence could affect historic properties (i.e., National Register eligible sites).

Wilderness Study Area

Fence construction could affect the quality of the area's wilderness characteristics. The wilderness criteria used in this assessment are: naturalness; outstanding opportunity for solitude; outstanding opportunity for primitive and unconfined recreation; and supplemental values.

1.7 CONFORMANCE AND CONSISTENCY

The proposed action is in compliance with the Brothers/La Pine Record of Decision (ROD), 1989, North Fork Crooked River Wild and Scenic River Management Plan, 1993, BLM Interim Management Policy for Lands Under Wilderness Review, Manual H-8550-1, 1995, BLM Visual Resource Management Manual H-8410-1, 1986, and other BLM manuals, policies and guidelines.

Resource Management Plan (RMP) Direction:

Direction outlined in the Brothers/La Pine Resource Management Plan Record of Decision regarding management of riparian areas (Brothers/La Pine ROD, 1989, pg. 98) is to:

- Protect or restore natural functions and to maintain, restore, or improve riparian areas to achieve a healthy and productive ecological condition for maximum long-term multiple use benefits and values.

- Protect and manage the North Fork and South Fork Crooked Rivers to provide full vegetative potential. This is accomplished by grazing management, fence construction and maintenance of multiple use benefits warrant. Where fencing is not feasible, livestock use is managed to achieve 60% of vegetative potential within 20 years.
- The Brothers/La Pine Resource Management Plan directs that the Liggett Table Wild Horse Herd be excluded from the South Fork Canyon Pasture to protect riparian values and enhance vegetative recovery (Brothers/La Pine ROD, 1989, pg. 72).

Wild and Scenic River Plan Direction:

The North Fork Crooked Wild and Scenic River Management Plan identified native riparian conditions as being an outstandingly remarkable value in river segments 4 and 5, which contains approximately 14.1 river miles. (Chapter II, Management Direction, Botanical Values, NCFR-7).

Management direction for riparian habitat and instream resources on BLM lands as outlined in the North Fork Crooked Wild and Scenic River Management Plan is to:

- Use management practices that accelerate riparian and water quality improvement. Practices such as season-of-use grazing, sequential annual rest treatments and riparian pastures will be used to maintain proper ecological status or improve riparian conditions. (Chapter II, Summary of Management Direction, NCFR-11).

1.8 DECISION TO BE MADE

The decision to be made is whether or not to authorize the construction of gap fencing along the North and South Forks of the Crooked River.

If the gap fencing construction project (proposed action) is approved, the BLM will be in compliance with directives set forth in various management plans. This compliance comes in the form of maintaining or improving riparian vegetation along the North and South Forks of the Crooked River. Limiting the access of wild horses and livestock to the canyon bottoms would allow for the improvement of the riparian areas. The riparian vegetation, water quality, channel function and aquatic habitat, scenic quality and recreational quality will all be improved by the gap-fencing project.

If the construction of the gap-fencing project is not authorized, cattle would continue to over utilize the riparian areas on the North Fork Crooked River and horses would continue to damage the riparian areas on the South Fork Crooked River. The over-utilization and damage to the riparian areas of the North and South Forks Crooked River is inconsistent with the Brothers/LaPine RMP/EIS/ROD, North Fork Wild & Scenic River Management Plan, BLM Visual Resource Management Manual, Wild and Scenic Rivers Act for the North Fork Crooked River, and the BLM Interim Management Policy for Lands Under Wilderness Review.

2.0 CHAPTER II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 DESCRIPTION OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVES

2.1.1 No Action

The No Action Alternative is to not construct new fences or repair old fences. Cattle would continue to over utilize and degrade the riparian areas on the North Fork Crooked River and horses would continue to utilize and degrade the riparian areas on the South Fork Crooked River. The areas would continue to be non-compliant with the management directives of the various management plans.

2.1.2 Proposed Action

The proposed action is to:

- a) Construct 10 new sections and reconstruct two sections of gap fencing in various locations along approximately 17 river miles of the North Fork Crooked River. Approximately 2.5 miles of actual fence construction is proposed within or adjacent to the river canyon. (Approximately 1.5 miles of fence would be constructed on BLM public land and approximately 1 mile of fence would be constructed on adjacent private land. Approximately 1.3 miles on the east side and 1.2 miles on the west side of the river canyon.). The proposed gap fence locations are shown on Figure 3.

- b) Construct two new sections and reconstruct two existing sections of gap fencing in various locations along approximately 14 river miles of the South Fork Crooked River. Approximately 0.6 miles of new construction and approximately 0.6 miles of reconstruction of gap fencing is proposed within or adjacent to this river canyon area. Proposed new construction and fence repair would be located on BLM public land, west of the South Fork Crooked River. The proposed gap fence locations are shown on Figure 4.

Constructed sections of fence will connect naturally occurring geographic barriers (cliffs) that currently have gaps between them. Once in place fences will exclude the use of existing gaps by wild horses and livestock for accessing the river bottom.

The proposed action would entail the construction of the fence within a corridor. The corridor would be established by manually using hand tools such as shovel, axe, chainsaw, pulaski, etc., clearing only that vegetation which would impede the installation of the fence segments. The proposed fence would be built with four primary criteria in mind:

- Minimize obstacle hazards to wildlife movement.

- Avoid visual/scenic impacts.

- Control livestock movement.
- Promote structural longevity; minimize future maintenance costs. A properly constructed fence means less short and long-term maintenance costs and extends the useful life of the structure, which in turn avoids premature maintenance costs.

Mitigation and Monitoring measures would be as follows:

1. Fence construction activities would be prohibited during deer/elk wintering periods (December 1 – May 1)
2. If new bald eagle nesting sites are recorded before or during construction, within ¼ mile non line-of-site or ½ mile line-of-site of any proposed project sites, construction should not be conducted between January 1 and August 31. If the Proposed Action were carried out in the late summer after young have fledged (i.e., August 31) or in the fall months, any potential impacts on bald eagles would be mitigated.
3. Areas disturbed by project activities would be monitored for noxious weeds. If any weeds were found, they would be reported to the BLM weed specialists and placed on a scheduled for control.
4. If any active burrows or nests were discovered during construction, the BLM wildlife biologists would be consulted before any disturbance occurs.
5. If any new cultural resources were unearthed during the course of this project, construction would be halted until the BLM cultural resource specialists approved the continuation of construction.
6. All motorized use (vehicle; ATV; motorcycle) would be limited to designated routes only.
7. Fences would be aligned to take advantage of existing natural cover such as vegetation, rocks and topography.
8. Whenever possible, fence alignment would be constructed so the fence would be located next to existing trees, rocks and other vegetation to aid in screening. To the extent possible, rock cribs or metal easy panels would also be located next to trees, vegetation and rocks to reduce visual contrasts.
9. Fence posts would be one color, using non-reflective, appropriately colored paint to reduce visibility. Non-reflective galvanized wire would be used.
10. All line clearing would be minimized and would not have all vegetation removed. Clearing would be done manually, using hand tools such as an axe, shovel, chainsaw, rock drill, pulaski, etc.
11. A thorough site cleanup would be performed after the completion of construction
12. If big game entanglement or fence maintenance issues arise, crossing structures would be added to the fence in those specific areas to aid in big game movement and/or reduce fence maintenance requirements.

2.2 SUMMARY OF THE ALTERNATIVES

For the purposes of this EA there are only two alternatives: the No Action alternative, and the Proposed Action alternative.

The No Action alternative consists of maintaining the present practices of over-grazing and over-utilization of the riparian areas in the canyon bottoms of the North and South Forks Crooked River. The No Action Alternative is not in compliance with various management plan directives.

The Proposed Action consists of building new portions of fence and repairing existing portions of fencing at key access points to the canyon bottoms along the North and South Forks of the Crooked River. This action would prevent the over-utilization and over-grazing of the riparian areas by horses and cattle, thereby bringing these areas into compliance with the management directives of the different management plans.

Table 1. Alternative Comparison Summary

Objective	Proposed Action Livestock managed Construction of gap fence Reconstruction of existing fence Protects riparian areas	No Action Uncontrolled livestock Use No new fence construction or repair Does not protect riparian areas
Protect or restore natural functions of the riparian areas.		
<ul style="list-style-type: none"> Riparian and Stream Channel Condition 	Improve riparian vegetation Stream channel condition	Continued degradation of riparian vegetation and channel banks
<ul style="list-style-type: none"> Water Quality 	Improve water quality in watershed	No improvement to water quality in watershed. Long-term degradation
<ul style="list-style-type: none"> Wildlife 	Impacts Mitigated	No Impact
Maintain or improve ecological status on all grazing allotments and meet management goals on those allotments		
<ul style="list-style-type: none"> Wild Horse Management 	Impacts Mitigated	Continued access to project area will have negative long-term impacts
<ul style="list-style-type: none"> Grazing Management – Livestock 	Impacts mitigated	Continued access to project area will have negative long-term impacts
Maintain Wilderness Characteristics		
<ul style="list-style-type: none"> Naturalness/Supplemental Value (Scenic) - North Fork Wilderness Study Area 	Fences would detract from the naturalness and scenic quality of the area. Positive impact on ecological values.	Continued access and riparian degradation by livestock
<ul style="list-style-type: none"> Naturalness/Supplemental Value (Scenic) - South Fork Wilderness Study Area 	Fences would-detract from the naturalness and scenic quality of the area. Positive impact on ecological values	Continued access and riparian degradation by livestock and wild horses
<ul style="list-style-type: none"> Solitude - North Fork Wilderness Study Area 	Positive impact on solitude.	No Impact
<ul style="list-style-type: none"> Solitude - South Fork 	Positive effect on solitude.	No Impact

Wilderness Study Area		
<ul style="list-style-type: none"> Recreation - North Fork Wilderness Study Area 	Minimal, short-term impact to visitors seeking Primitive Recreation opportunities in side canyons.	No Impact
<ul style="list-style-type: none"> Recreation - South Fork Wilderness Study Area 	Minimal, short-term impact to visitors seeking Primitive Recreation opportunities in side canyons	No Impact
Maintain Outstandingly Remarkable Values in the North Fork Crooked River		
<ul style="list-style-type: none"> Wild & Scenic River 	Increased protection of riparian meadows; an Outstandingly Remarkable Value	Continued degradation of riparian meadows by livestock
Maintain Visual Quality of both the North and South Forks of the Crooked River		
<ul style="list-style-type: none"> Visual Resources 	Reduction in scenic quality; Impacts Mitigated	No Impact

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Alternatives that were considered but not analyze in detail were:

- Patrolling the North and South Forks of the Crooked River by horseback or off highway vehicles on designated routes to herd, or limit access of the cattle and horses. This alternative was eliminated from detailed analysis because it does not meet the objectives of the Purpose and Need. Riparian areas would not be protected adequately because the area is inaccessible most of the year, especially during the winter. In addition, all motorized use is limited to designated routes, restricting the effectiveness of this alternative.
- Ban cattle grazing along both forks of the river. This alternative was eliminated from detailed analysis because it does not meet the objectives of the Purpose and Need. This alternative does not comply with current management practices, goals and objective as stated in Brothers/LaPine Resource Management Plan and the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington. Additionally, this alternative does not address the problem of the wild horses along the South Fork Crooked River.
- Construct fencing outside, or along the boundary of the North Fork and South Fork Wilderness Study Areas. This alternative was eliminated from detailed analysis because it does not meet the objectives of the Purpose and Need. The alternative would effectively create one large riparian pasture for livestock grazing and would make it impossible to implement a viable grazing system to meet the management goals of the allotments as described in the Brothers/La Pine RMP, pg.76-79.

- Change season or duration of livestock use; short-term riparian/upland use and then remove livestock out of riparian/upland area. Approximately 14,800 acres of BLM land in two upland pastures would be involved. The allotment currently has three upland pastures in deferred rotation. This alternative was eliminated from detailed analysis because no viable grazing system could be developed with such a large riparian pasture and only one upland pasture.
- Postpone project until after Congress acts regarding wilderness designation, or non-designation for both Wilderness Study Areas. This alternative was not eliminated from detailed analysis because it would not meet the current need to protect and enhance riparian areas within the North and South Fork Crooked Rivers.

3.0 AFFECTED ENVIRONMENT

This chapter describes the current status of resources that may be affected by either the Proposed Action or the No Action Alternative. Data concerning existing (i.e. baseline) conditions and resource trends were obtained from studies, published sources, unpublished materials, interviews with local, state and federal agencies, and field observations of the proposed project area.

To comply with the National Environmental Policy Act (NEPA), environmental assessments should address mandatory elements of the environment that are subject to requirements specified in statutes or regulations. These elements are included in Table 2.

Table 2. Critical Elements

Element	Affected	Not Affected
Soil	X	
Vegetation	X	
Recreation/Visual Resources	X	
Wildlife	X	
Grazing Management	X	
Off-Highway Vehicle Use		X
Riparian/Watershed	X	
Water Quality	X	
Threatened, Endangered, Candidate Species, and Species of Concern	X	
Cultural Resources	X	
Wild and Scenic Rivers	X	
Prime/Unique Farmlands		X
Floodplains		X
Paleontological Resources		X
Environmental Justice		X
Solid/Hazardous Waste		X
Wilderness/Wilderness Study Area	X	
Air Quality		X
Areas of Critical Environmental Concern/Research Natural Area	X	

The Crooked River Gap Fencing Project Environmental Assessment (EA) was developed from these data in accordance with NEPA guidelines (40CFR§1502.4(d), 1502.10, 1508.28). The following elements of the human and ecological environment were determined not to be present or not affected by the Proposed Action and were eliminated from further consideration:

- Off-Highway Vehicle Use
- Prime/Unique Farmlands

- Floodplains
- Paleontological Resources
- Environmental Justice
- Solid/Hazardous Waste
- Air Quality

In addition, the following elements were determined to be present in the area and are brought forward for further consideration:

- Soil
- Vegetation
- Recreation/Visual Resources
- Wildlife
- Grazing Management
- Riparian/Stream Channel
- Water Quality
- Threatened, Endangered, Candidate Species, and Species of Concern
- Cultural Resources
- Wild and Scenic Rivers
- Wilderness/Wilderness Study Area
- Areas of Critical Environmental Concern/Research Natural Area

3.1 SOIL

The most recent soil vegetation inventory in the project area was in the 1980's. Information was collected on soil and vegetation types. This inventory is called the Brothers-SVIM (Soil Vegetative Inventory Method) Inventory. The fencing in the proposed project area traverses soil types located on tablelands (flat slopes) and escarpments (steeper slopes). The tableland soils are mostly shallow (10 to 20 inches deep to bedrock) and very shallow (4 to 10 inches deep to bedrock). They are clayey textured with rock fragment content ranging between 15 and 65 percent gravel and cobble-sized fragments. Soils on the escarpments are loamy textured with high rock fragment content and are more varied in depth. Soil depths over bedrock or duripans, range from very shallow to moderately deep (4 to 40 inches). There are several different soil series within the proposed project area. These soil series are:

- Westbutte series
- Canest series
- Decantel series
- Lorella series
- Madeline series
- Lerrow series

All of the soils are well drained and contain dark surfaces (Mollisols). Vegetation on these series consists mainly of Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, antelope bitterbrush, Thurber's needlegrass, western juniper, rabbitbrush, basin wildrye, and various types of sagebrush.

Westbutte Series

The Westbutte series consists of moderately deep, well-drained soils that formed in colluvium weathered from basalt, tuff and andesite. Westbutte soils are located on tops and north facing hill and mountainside slopes.

Canest Series

The Canest series consists of very shallow, well-drained soils that formed in material weathered from lava rocks, basalt and tuff. Canest soils are found on basalt tablelands and have slopes of 1 to 8 percent. Soils are moist in winter and spring.

Decantel Series

The Decantel series consists of shallow, well-drained soils that formed in material weathered from lava rocks and ash. Decantel soils are situated on lava plains and benches and have slopes of 1 to 12 percent. Soils are moist in winter and spring. This series is characterized by soils that are well drained, have rapid runoff and slow permeability.

Lorella Series

The Lorella series consists of shallow, well-drained soils that formed in material weathered from tuff and basalt. Lorella soils are found on hills, mountains, escarpments and rock benches. Slopes are 0 to 75 percent. Lorella soils are located on side slopes of mountains and hills and on convex slopes of escarpments.

Madeline Series

The Madeline series consists of shallow, well-drained soils that formed in residuum and colluvium from basalt, tuff and andesite. Madeline soils are situated on summits, crests, shoulders, and side slopes of plateaus, hills and mountains. Slopes are 0 to 50 percent. This series is well drained, has slow to rapid runoff and slow permeability.

Lerrow Series

The Lerrow series consists of moderately deep, well-drained soils that formed in residuum and colluvium derived mainly from volcanic rocks. Lerrow soils are located on hills, mountains, and rock pediments. Slopes are 4 to 50 percent.

See Appendix A for the Soils Map and Associated Tables

3.2 VEGETATION

In the project area the vegetation is composed of western juniper (*Juniperus occidentalis*), sagebrush (*Artemisia* spp.) and rabbitbrush (*Chrysothamnus* spp.). There are also several species of grasses and several members of the buckwheat family (*Eriogonum* spp.). Riparian areas are also present with species common to these areas such as alders (*Alnus* spp.), willows (*Salix* spp.), sedges (*Carex* spp.), and rushes (*Juncus* spp.). In the higher elevations there are ponderosa pine (*Pinus ponderosa*). Listed below are the species of plants that occur within the project area and are considered to be threatened, endangered, species of concern, candidate species, or Bureau Sensitive. This

information comes from personal communications with Ron Halvorson, Botanist, BLM Prineville District.

Achnatherum hendersonii (Henderson's ricegrass) is a perennial member of the grass family considered by the Natural Heritage Data Base to be threatened or endangered in Oregon but more common elsewhere. As such it is regarded as "Bureau Sensitive". It is found sporadically in central and northeastern Oregon on rocky, "scab" ridges, often in association with Sandberg bluegrass, stiff sagebrush and buckwheats. Specific locations include the Trout Creek drainage north of the Ochoco National Forest, near Shaniko and in the North Fork Crooked River area. As a bunchgrass, it is susceptible to grazing practices that would not allow for rest from grazing during the critical growing season, approximately May through July, depending on the site. Other threats include the invasion of exotic species, off-highway vehicle (OHV) traffic and road construction.

Calochortus longebarbatus var. *peckii* (Peck's long-bearded mariposa lily) is a Bureau Sensitive species found in vernal moist, low gradient draws and streambeds, and in broad meadow basins where it is situated between the wettest parts of the meadow and the forested edge. Sterile, it reproduces by bulblets that form at the base of the plant and by bulbils that form in the lower flower axils. Winter and spring moisture levels determine the amount of flowering during a given year, recognizing that a large percentage of the population resides in the below-ground bulb bank. Fire suppression may have allowed encroachment of trees and shrubs onto its meadow/meadow edge habitat. The species is sensitive to spring/early summer burning but appears to tolerate low intensity fall burning. Early season livestock grazing is also detrimental. In the Prineville District, this plant is found in the Ochoco Mountains in Crook, Wheeler and Harney counties, and is known from Big Summit Prairie and some of the drainages south of the Ochoco National Forest, including the Maury Mountains. It normally flowers in July.

Lomatium ochocense spp. *nov.* (Ochoco biscuitroot) is a member of the carrot family and is endemic to an area on the south flank of the Ochoco Mountains, in Crook County. Recently described but not yet published, it is apparently restricted to five locations on rocky, scabland ridges, associated with stiff sagebrush, Sandberg bluegrass and Henderson's ricegrass, along with other members of the *Lomatium* genus, particularly *L. cous*. It is considered by the Natural Heritage Data Base to be threatened or endangered throughout its range and therefore is Bureau Sensitive. Since its name has not yet been published, it has no official state status.

3.3 VISUAL RESOURCES/RECREATION

This section identifies and describes the visual resources that could be affected by the Proposed Action and alternative. The proposed fence lines along the North and South Forks of the Crooked River, and portions of Wilderness Study Areas that are adjacent to the proposed fence lines, are the study areas for this resource. These areas include the river segments and adjacent lands that viewers may travel through, recreate in, or where the Proposed Action and alternative may affect existing views.

3.3.1 Landscape Character

The project area lies within the Columbia Plateau physiographic province. This area generally consists of arid tablelands, intermountain basins, dissected lava plains, and widely scattered low mountains. The project area, which consists of the North and South Fork Crooked Rivers, is characterized by steep basalt canyon walls and slopes occasionally interrupted by moderately sloped side canyons and drainages. The river has eroded through thousands of feet of basalt rock, exposing numerous combinations of reddish-tan, dark brown, and black basalt columns that provide extraordinary visual contrasts with the river channel's vegetation and flowing water. Grasses and willows flourish along the shoreline; ponderosa pine, larch, juniper, and aspen (along the North Fork Crooked River only) grow along the river, side canyons, and upper slopes. The river is pristine and free flowing, and the combination and diversity of these varying forms, textures, and colors create remarkable scenic values within the river system (BLM 1993)

3.3.2 Visual Resource Management in the Crooked River

The areas along the Crooked River that have been proposed for fencing are located on BLM-managed public and private lands. The BLM uses a Visual Resource Management (VRM) system to inventory and manage visual resources on public lands within its jurisdiction. The VRM system uses four classes to describe the different degrees of modification allowed to the landscape. VRM classes are visual ratings that describe an area in terms of visual quality and viewer sensitivity to the landscape. Once an area has been assigned a VRM class, the class can be used to analyze and to determine the visual impacts of proposed activities on the land and to gauge the amount of disturbance an area can tolerate before it exceeds the visual objectives of its VRM class (BLM 1980). VRM classes are assigned to areas through the Resource Management Plan (RMP) process, and the assignment of VRM classes is ultimately based on the management decisions made in the RMPs.

The Crooked River is considered to possess outstanding scenic value along those sections of the North Fork that have been designated as Wild and Scenic. The North and South Forks of the Crooked River possess generally high scenic quality. The North Fork Crooked River has been designated as a National Wild and Scenic River, having a Wild classification. The North and South forks of the Crooked River have been designated as Wilderness Study Areas, requiring a VRM Class I rating. The objective of VRM Class I is to preserve the existing character of the landscape, and it is assigned to those areas where a management decision has been made to preserve a natural landscape. This includes specially designated areas such as national wilderness areas, wilderness study areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. This visual class provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and should not attract attention (BLM 1986).

3.3.3 Key Observation Points

Areas of visual sensitivity are analyzed from specific points of view, which are referred to as Key Observation Points (KOPs), in order to determine the potential visual impacts of the Proposed Action and alternatives on the existing landscape. The visual analysis points of view are selected based on such factors as length of time that the impacted areas are in public view, the potential number of viewers of the impacted areas, the slope angle of the impacted areas, and the relative size of the impacted areas (BLM 1986). A linear KOP refers to a continuous series of points of view along which a visual contrast analysis is made, as compared to a single, specific point of view.

The primary views of the proposed fences described in the Proposed Action would be from high points along the WSA boundaries overlooking the Crooked River and/or from points along the river channel. Key observation points were determined for each proposed fence area and the location of each KOP is described below (see Figures 5 & 6). Sections 13, 15, 17, 18, 19 (Figure 6) were not assessed for visual impact as these sections either already exist or are being partially rebuilt due to a small amount of damage. Appendix B of this document contains the Contrast Rating Forms and the photos associated with each KOP.

North Fork Crooked River

KOP1 (Private Land)

This KOP is located along the Crooked River, at a point where the side canyon intersects the river. Views to the northeast are up the side canyon and include steep, rubble-choked basalt cliffs, and ponderosa pines in the middle ground and background. Riparian vegetation, dead and down trees, and basalt rubble dominate the foreground.

KOP2 (Private Land)

A linear KOP was established along the length of the proposed fence line, and runs along the riverbank. The views are to the west, away from the river, and are fairly uniform: the river bank very gently slopes down to the river channel and is dominated in the foreground, middle ground, and background by grasses and pines. Gravel bars line the river's edge, and steep basalt cliffs bound the area on either side.

KOP3 (Private Land)

This KOP is on the river channel, looking east up the side canyon. The side canyon is steep and heavily wooded in the middle ground and background. Rocky outcrops, low-growing willow and alder, and basalt rubble dominate the foreground. The KOP is bounded by dense pine growth on the north side and a steep, basalt cliff on the south side. An old, wooden, barbed wire fence of unknown origin, mostly collapsed, runs along a segment of the proposed fence line. Because of the state of disrepair of this fence, it is completely non-functioning.

KOP4 (Private and Public Land)

A linear KOP was established along the length of the proposed fence line. The views are along the riverbank, looking west, up and across the Fox Canyon Creek. Alternating

basalt cliffs and gentle, pine-forested slopes dominate the middle and background. The foreground is comprised of gravel bars, pines, low-growing willows, and grasses.

KOP5 (Private Land)

The proposed fence line in this area is located along a moderately steep, forested slope. The KOP is along the river channel, looking east. Ponderosa pines dominate the middle ground and background, grasses and willows dominate the foreground. A steep basalt cliff is in view along the southern boundary of the proposed line. A similar cliff can be seen along the northern boundary.

KOP6 (Public Land)

This KOP is located along the river, looking up canyon to the west. The view is of a heavily forested, moderately steep slope, bounded on the north and south by steep cliffs. Dense willow growth is visible in the foreground.

KOP7 (Public Land)

This KOP is identical to KOP6, except that the view is to the east and looks across the river. The view is of a densely forested side canyon bounded on both sides by basalt cliffs. Trees obscure the middle and background views, the foreground is dominated by a dense margin of willows growing along the riverbank.

KOP8 (Private Land)

This is a linear KOP that follows the proposed fence line as seen from the river bottom. Steep cliffs and moderately steep, forested slopes alternate along the southern half of the KOP. High, vertical basalt cliffs dominate the northern segment of the KOP. Dense patches of willows and grasses grow along the riverbank for the entire length of the KOP.

KOP9 (Public Land)

The KOP is linear, and follows the length of the proposed fence line. The point of view is the river bottom, looking east. The northern third of the KOP is comprised of a moderately steep slope, interspersed with rock outcrops, grasses, and an occasional pine tree. A continuous, sheer, vertical basalt cliff dominates the middle third of the KOP. The southern third of the KOP is comprised of a grassy, rocky, moderately steep slope that gradually tapers off into a heavily forested side canyon, bounded on its southern end by a vertical cliff. Dense patches of willow grow along the riverbanks in the northern and southern thirds of the KOP.

KOP10 (Public Land)

This KOP is located at the top of a cliff, overlooking the river, looking east. The foreground view is of a vertical cliff, running along the riverbank that eventually tapers off into a moderately steep slope to the south. The middle ground and background views are completely dominated by a dense stand of ponderosa pine.

KOP11 (Public Land)

The riverbank looking east and upslope is the point of view for this KOP. The foreground and middle ground are dominated by a grassy meadow interspersed with pine

trees and rock outcrops. A dense growth of pines and high, steep cliffs dominate the background views. The riverbank in the foreground is comprised of a cutbank and dense growths of willows that tend to obscure the middle ground and background views.

KOP12 (Public Land)

This is a linear KOP, located along the riverbank, looking west and up a moderately steep slope. The views are relatively uniform, dominated in the middle ground and background by grassy fields interspersed with rock outcrops and pine trees. The foreground along the river is flat and comprised of grasses, short willows, and an occasional ponderosa pine. Steep cliffs on the north and south form the boundary of the KOP. An old, wooden, barbed wire fence of unknown origin, mostly collapsed, runs along the southern segment of the KOP. Because of the state of disrepair of this fence, it is completely non-functioning.

South Fork Crooked River

KOP14 (Public Land)

The point of view is the top of a cliff, looking southeast at the northern end of the proposed fence line. Middleground and background views are of the river, which is approximately one-half mile away, and steep, heavily forested slopes. Foreground views, just beneath the cliffs, are of grassy, rock-strewn slopes broken up by widely scattered juniper trees.

KOP16 (Public Land)

This KOP is located at the top of a cliff, looking northeast to southeast across the proposed fence line. Background and middleground views are of the Crooked River, which is approximately one-half mile away, steep, grassy, boulder-strewn slopes, and juniper trees growing on the lower slopes below and on the river's opposite slopes. Foreground views are of the sagebrush and juniper-choked drainage, and basalt cliffs on either side of the drainage.

Figure 5. Key Observation Points – North Fork

Figure 6. Key Observation Points – South Fork

3.4 WILDLIFE

Wildlife species that occur within the project area are consistent with those species listed in Appendix N (Wildlife Habitat Interrelationships) of the Draft Brothers/La Pine Resource Management Plan and Environmental Impact Statement (1987). See Appendix C for the Biological Evaluation.

Detailed winter habitat for deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), and antelope (*Antilocapra americana*) (big game species) has been monitored and recorded along both the east and west sides of the North and South Forks of the Crooked River. These winter habitat areas are important to the survival of big game species. However, winter habitat does not infer that these areas are not utilized during the entire year. Big game species have been recorded and monitored crossing both the North and South Forks on a year round basis. These animals generally move along corridors that provide the least amount of resistance. This results in the majority of movement occurring along draws and drainages with gentle slopes.

Currently, big game animals along the North and South Forks of the Crooked River utilize many of the same forage resources as cattle and wild horses. Competition for forage can result in the riparian corridors that tend to be over-utilized by wild horses and cattle.

3.5 THREATENED, ENDANGERED, CANDIDATE SPECIES, AND SPECIES OF CONCERN

Bald eagles

Bald eagle (*Haliaeetus leucocephalus*) nesting sites and winter roosting sites have been identified and recorded in the general area along the North Fork Crooked River. Both nesting and winter roosting sites are greater than ½ mile from any proposed fence construction activities.

Greater sage grouse

Critical habitat has been identified and populations of greater sage grouse (*Centrocercus urophasianus*) have been documented along the South Fork Crooked River. All documented populations have been identified and recorded at locations that are located to the south, away from the proposed fence installation (Hanf 2002).

3.6 GRAZING MANAGEMENT

3.6.1 Wild Horses

The Wild Free-Roaming Horse and Burro Act (PL 92-195) states: “It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found as an integral part of the Public Lands.” After passage of this act in 1971, the Brothers/LaPine Resource Area and the North Fork Crooked River Resource Area were inventoried for free-roaming horses and burros. One area in the Brothers/LaPine Resource Area was designated as a Herd Management Area (HMA) containing wild horses. No burros were found.

The Liggett Table Wild Horse Herd Management Area (HMA) is located west and south of the South Fork Crooked River. This HMA contains 25,000 acres in the Brothers/LaPine Resource Area. The Appropriate Management Levels (AML) is from 10 to 25 head of horses and the allotted grazing use is 300 AUMs (Animal Unit Month).

Horses in the Liggett Table HMA are saddle stock conformation and relatively uniform in color, consisting of dark sorrels and chestnuts. Mature horses are 15.1 hands and weigh 1,000 to 1,100 pounds.

The AML within the HMA was established through previous land use plans to ensure public land resources, including wild horse habitat, are maintained in satisfactory, healthy condition, and unacceptable impacts to these resources are minimized. Monitoring data, through the life of the plans, support established AMLs. To prevent resource overuse and maintain a thriving ecological balance, gathering takes place as the herd reaches the maximum number of established AML range and/or monitoring data indicate that an excess of horses is present. Typical management is for horses to be gathered down to the minimum number of the AML range to avoid the need for frequent, expensive gathering. Site-specific details of gathering, including trap sites, are determined at the time of each gather. Gathered horses are transported to the Burns Wild Horse Corral for adoption by the public.

For the Liggett Table Wild Horse HMA, gathering is supposed to occur when herd numbers increase above 25 horses. The Brothers/LaPine Resource Management Plan states that all stallions will be removed and replaced with new bloodline stock from the BLM Burns Wild Horse facility. Until 1998, the herd remained stable and it was not necessary to remove any wild horses because their numbers did not exceed 25. Since then, the herd has grown. Multiple attempts to gather excess horses in 2000 were unsuccessful. In September of 2002 the herd numbered a total of 53 horses. Current BLM estimates put the herd number between 55 to 60 horses. A wild horse gather is planned for the summer months of 2003.

Herd management requires that fenced gates between pastures will remain open except when cattle are present, and to periodically control horse location for proper vegetative management. The river corridor is outside of the HMA; the horses are only supposed to be up on the plateau, not down on the river in the riparian areas. Currently, wild horses access the river's riparian corridor through breaks in existing fences, gaps in fencing, unfenced draws, and open gates. This results in unplanned heavy grazing by wild horses of up to 60% of herbaceous vegetation.

3.6.2 Livestock

Two grazing allotments within the project area of the South Fork Crooked River are the Camp Creek and the Dagus Lake. The Camp Creek allotment contains 17,861 acres. The allotted grazing use is 966 AUMs. The period of use is from April 16 through September 15. Management Goals for this allotment includes improve ecological condition, stabilize or improve watershed condition, improve riparian habitat, improve winter range for mule deer and/or antelope, and increase availability of livestock forage.

The management category for the Camp Creek allotment is (I) Improve. The I allotments are usually areas with a potential for resource improvement where the BLM controls enough land to implement changes. Some I allotments are under intensive management planning cooperatively developed by the grazing permittees in the allotment. The grazing system includes deferred rotation, rest rotation, and early removal.

The Dagus Lake allotment consists of 11,401 acres. The allotted grazing use is 487 AUMs. The period of use is April 16 through November 15. Management Goals for this allotment includes improve ecological condition, maintain ecological condition, improve riparian habitat, and maintain and improve winter range for mule deer and/or antelope. The management category for the Camp Creek allotment is (M) Maintain. The M allotments are usually where satisfactory management exists and major resource conflicts have been resolved. The grazing system includes deferred rotation and rest rotation.

Two grazing allotments within the project area of the North Fork Crooked River Resource Area are the North Fork and the Rabbit Valley. The North Fork allotment consists of 11,048 acres. The allotted grazing use is 739 AUMs. The period of use is April 15 through October 15. Management Goals for this allotment includes maintain ecological condition, stabilize or improve watershed condition, improve riparian habitat, maintain and improve winter range for mule deer and/or antelope, improve forage quality for livestock and wildlife, maintain or improve habitat for mule deer and/or antelope, maintain or improve waterfowl habitat, and maintain riparian habitat. The management category for the North Fork allotment is (M) Maintain. The M allotments are usually where satisfactory management exists and major resource conflicts have been resolved. The grazing system includes deferred rotation and exclusion.

The Rabbit Valley allotment consists of 15,160 acres. The allotted grazing use is 548 AUMs. The period of use is April 16 through November 15. Management Goals for this allotment includes improve ecological condition, and maintain ecological condition. The management category for the Rabbit Valley allotment is (I) Improve. The I allotments are usually areas with a potential for resource improvement where the BLM controls enough land to implement changes. Some I allotments are under intensive management planning cooperatively developed by the grazing permittees in the allotment. The grazing system includes spring/summer, exclusion, and deferred rotation.

3.7 RIPARIAN/STREAM CHANNEL CONDITIONS, WATER QUALITY, AND FISHERIES HABITAT

3.7.1 Riparian/Stream Channel Conditions

The project area is located in the headwater reaches of the Crooked River, which flows west to the Deschutes River of Central Oregon. The watersheds containing the project are the Lower North Fork and the Lower South Fork Watersheds.

Lower North Fork

The Lower North Fork watershed is approximately 70,088 acres and ranges in elevation from 5100–3000 feet and contains 4 sub-watersheds. The main water body is The North Fork Crooked River, which is approximately 29 miles in length. The main river channel

begins south of Big Summit Prairie and flows north where it enters Big Summit Prairie, turns east, and continues to gain flow volume from Indian Creek, Brush Creek, and Peterson Creek, which are three of the four main tributaries to the North Fork. East of Big Summit Prairie the river turns south at the confluence of Deep Creek, which is the fourth main tributary. From the confluence of Deep Creek the river begins flowing through a canyon characterized by increased gradients and substrate dominated by cobbles until it reaches private ground approximately 4 miles upstream from the confluence with the mainstream Crooked River.

Big Summit Prairie is a large meadow system with low channel gradients and well-developed soils. Historically, this meadow system maintained a deeper-narrower channel with a predominance of willows and sedges providing channel stability. Some channels may have been very narrow and deep with sedges and non-woody vegetation providing channel stability. Seasonal floodwaters would have accessed a broad-unconfined floodplain and deposited sediments adjacent to active river channels. Beaver activity would occasionally have caused sediment deposition behind dams and periodic flooding of riparian areas.

Current riparian conditions on Big Summit Prairie are poor. Big Summit Prairie is privately owned and operated for livestock production. Spring, summer, and fall grazing of sheep and cattle has occurred for the past 100 years. Riparian vegetation, which once stabilized stream channels, has been removed by livestock grazing. Stream channels have become incised and access to the floodplain by peak flow events has been eliminated. During high flow events, floods scour stream banks and transport sediments into lower reaches where it is deposited as flows recede, eliminating fish spawning gravels and pools. As high flows erode stream channels, locations where riparian vegetation can establish are eliminated. Banks have become too steep to support plant growth, resulting in channels that have no lateral stability and produce high amounts of sediments. During low summer flows, channels become wide and shallow or dry up. As a result of riparian vegetation loss, widening and shallowing of stream channels, many upper reaches of the river have become uninhabitable by native fish species such as Redband Trout (*Oncorhynchus mykiss gairdneri*).

Below the confluence of Deep Creek the morphology of the river changes. Steep basalt canyon walls confine the channel laterally. Cobbles, boulders, and bedrock dominate the river substrate and channel gradients increase as the river flows south from Deep Creek.

Riparian vegetation expresses a variety of age classes and species numbers in most segments. However, some segments appear to be recovering from impacts from the flood that occurred in 1996, with middle and young aged alder and willow, but few older ones. In most of the flood-impacted segments, livestock grazing is impeding the recovery of the younger aged species. Willows, alders, red ozier dogwood, and chokecherry are the predominant hardwoods, with sedges as the predominant non-woody species. Most of the existing banks are stable due to the presence of bedrock and healthy riparian species. The steep sides of the canyon limit access of livestock into the canyon. There are isolated locations where access is easily gained by livestock, but once in the canyon they

are able to travel within an approximate 5 mile reach length between Upper Falls and Lower Falls. This 5-mile reach length is subject to season-long use by livestock that have found their way to the river and remain in the canyon bottom due to better forage, water, shade, and cooler air temperatures. Livestock typically access the canyon on an annual basis.

Within the rocky canyons of the river there is limited beaver activity. Observed activity takes place primarily in the banks of the river. Morphology of the river channel and substrate composition limits the potential beaver activities to isolated locations that have the correct combination of soil, hardwoods, and floodplain development.

Lower South Fork Watershed

The Lower South Fork Watershed is located in the Beaver-South Fork Sub-Basin and is approximately 62,139 acres in size. The elevation ranges from 5000–3000 feet and the area contains 3 smaller sub-watersheds. The main water body is the South Fork Crooked River, which is approximately 42 miles in length. The main river channel begins north of Highway 20 and flows north to the confluence with Beaver Creek. At the confluence of Beaver Cr. and the South Fork Crooked River, the river becomes the mainstem Crooked River and flows in a westerly direction. The largest tributary of the South Fork Crooked River is Twelve Mile Creek. Twelve Mile Creek enters the South Fork from the southeast, 12 miles south of the confluence of Beaver Creek

Current riparian conditions indicate isolated impacts from grazing, but overall show sufficient riparian species to stabilize the stream banks. Predominant woody species found in the riparian areas are conifers 30-50 cm in diameter (ODF&W, BLM, 2001). Predominant non-woody species are sedges and rushes. There are very few riparian hardwood species or numbers present along stream banks. The riparian areas in the South Fork are managed as a riparian pasture and are grazed by livestock for a short period of time. The riparian pastures within the project area are grazed by livestock in the spring two out of three years and rested the third year. However, wild horses can access the riparian areas year around by jumping existing fences that are in poor condition and utilizing steeper access points not accessible to livestock. Wild horses were observed in the river bottom during field survey of the area fall 2002. There is evidence of cattle grazing along sections of the South Fork in the project area outside of the grazing season due to trespass from adjacent pastures.

Indication of flood damage is minimal in the canyon bottom. Stream bank stability and substrate indicate appropriate transport of sediments and channel maintaining flows. Beaver activity is low and may be limited by the absence of riparian hardwoods such as willow. Within some reaches channel morphology is moderately constrained laterally due to hill slope and terrace controls with the canyon. Many other reaches are unconstrained within the canyon, but exhibit low sinuosity due to coarse substrate. Aquatic surveys performed in 2001 by Oregon Department of Fish and Wildlife/BLM indicate undercut banks are present and actively eroding banks are limited to less than 20% (*p-value .314*) of total channel length.

3.7.2 Water Quality

Lower North Fork Crooked River

The North Fork Crooked River is currently considered water quality limited from the mouth to the headwaters (44.7 miles) based on temperature and flow modification, and is on the Oregon Department of Environmental Quality 303(d) list. The stream temperature criteria for the North Fork Crooked River is 17.8°C (64°F) for salmonid rearing. There are two BLM temperature-monitoring sites located on the North Fork Crooked River that were established in 1992. Both monitoring sites are located below the confluence of Deep Creek in the basalt canyons. One site is just below Upper Falls, the second is located five miles north of the mouth on the BLM/Private boundary. For every year monitored, the North Fork has exceeded the Oregon temperature standard of 17.78° C (64°F). For the years 1992-2000 the rolling seven-day average of the 7-day maximum temperature has been 26° C (80° F) (Ralston, 2002).

Increased temps may be due to the 96 flood that rerouted the channel out of shaded areas and into more open, less vegetated areas. Much of the areas are now recovering with young alder lining the channel. Once temperature levels in upstream reaches are increased there is little mitigation (from management actions) to reduce them in lower reaches. Monitoring data indicate the average reduction in water temperature between the upper and lower stations is 0.02° C per mile. Some years of record indicate temperatures increasing 0.03° C per mile. For monitoring year 1998 the lower monitoring point exceeded Oregon State standard 22 days more than the upper point (BLM, 2002).

South Fork Crooked River

The South Fork Crooked River is considered water quality limited from the mouth to river mile 18 based upon stream temperature, and is on the Oregon Department of Environmental Quality 303(d) list. The stream temperature criteria for the South Fork Crooked River is 17.8°C (64°F) for salmonid rearing during the summer, and 12.8°C (55°F) from October 1-June 30 for salmonid spawning. Currently, there are two BLM temperature-monitoring sites on the South Fork. One located at the lower BLM/private boundary in the Cave Allotment, and a second located at the upstream end of the BLM/Private boundary at Jake Place. Data from these two sites is limited and no trends have been established. Both monitoring points did indicate that water temperatures exceeded the 17.8°C State standard for summer months during 2000 and 2001. An aquatic habitat surveys performed in August 2001 collected additional temperature data, with maximum temperatures ranging from 16° –24° C (60°-75° F) (ODF&W, 2001), exceeding the summer State stream temperature criteria.

3.7.3 Fisheries Habitat

Fisheries habitat within the North and South Forks Crooked River is currently limited primarily by summer water temperature, which has been shown to exceed the Oregon State standard of 17.8° C for salmonid rearing criteria. Water temperatures during the summer months in conjunction with low water levels limit the quantity and quality of fish habitat in both North and South Forks. Additionally, shade-producing riparian vegetation

within the South Fork Crooked River Project Area is absent. During summer months, habitat conditions deteriorate due to periods of low water and high solar radiation.

Current fisheries populations and population trends for native Redband trout in the project area are unknown. Information relative to habitat as affected by riparian vegetation and water quality has been used to evaluate the current conditions within the project area. Current conditions of both riparian vegetation and water quality are discussed in this section and relate directly to fisheries habitat conditions. Fisheries habitat quality would correlate directly with riparian health and water quality conditions. Fisheries assessment surveys are scheduled for 2003 and will give better information on fish populations and current conditions.

3.8 CULTURAL RESOURCES

The two proposed project areas of the South Fork Crooked River (SFCR) and North Fork Crooked River (NFCR) fall within a larger, diverse landscape that marks a transition between what is physiographically the southern Columbia Plateau and ecologically the Great Basin. Both biotic and abiotic resources are rich over this larger area. For example, the area has a rich and complex lithic terrane containing extensive obsidian sources to the south that transition into a wide variety and type of crypto-crystalline stone (jasper, chalcedony, petrified wood, etc) and andesite/basalt sources as one moves to the north. Spatially, the archaeological record is relatively dense, but variable. Temporally, the area exhibits archaeological evidence spanning the Early through Late Archaic cultural periods (roughly 10,000 years ago to the present). There is a general trend towards population increase through time. The economy of the archaeological record indicates both residential and logistical mobility strategies based on the vagaries of resource distribution and availability in a high desert setting. Hunting and gathering was broad-based with an emphasis on selected resources (e.g., roots) over the last 2500 years. The area was ethnographically known to be occupied by the Northern Paiute, but was alternately visited by Sahaptan-speaking groups from the north over, at least, the past 2000 years.

In 1826, Peter Skin Ogden passed through the area of the confluence of the North Fork and South Fork Crooked River. There, he noted “Snake” Indians using weirs to capture fish. A portion of the Meeks lost wagon train passed south and west of the South Fork Crooked River in the early 1840’s. During the 1860’s, the military established routes through or adjacent to the project areas. Camp Maury is located in between the two project areas. The Yreka-Canyon City “road”, from which miners from California in the mid-1860’s accessed the gold diggings of the upper John Day River watershed is located to the south and east of the SFCR. With the presence of the military and the discovery of gold as an impetus, settlement of the area began in earnest in the 1870’s. The main land use theme for this area was and remains farming and ranching.

Both the SFCR and NFCR project areas are narrow canyons incised into geologically young flood basalts of the late Miocene. Steep canyon walls, exposed bedrock and shallow eolian and/or residual sediments are characteristics of this type of landform. Canyon bottoms are very narrowly defined with little or no sediment accumulation within

the floodplain that isn't impacted by seasonal river flows. This is true more for the NFCR segments where proposed gap fencing will be placed near river locations.

Cultural resource inventories conducted in the vicinity of the proposed gap fence project areas are limited. This has been due to few projects being proposed within the steep, rocky and rugged terrain. In the SFCR segment, a fence line route (Cultural Report 81-05-14) was inventoried that parallels or follows the southern half of the currently proposed gap fence location. Two small flake scatters (OR-05-92 and OR-05-93) were located and recorded along this route. Neither site was considered significant. Several prehistoric isolated finds were also noted along the same route, but not recorded. For the NFCR segment there are two relevant inventories (CR 84-05-02 and CR 92-05-01). CR 84-05-02 was related to the placement of a stock pond in an ephemeral drainage slightly west of the gap fence placement. The inventory resulted in negative findings. CR 92-05-01 was a large land exchange survey over patterned public lands to the east of the canyon. That inventory resulted in the discovery and recording of a variety of prehistoric sites and isolates.

3.9 WILD & SCENIC RIVERS

3.9.1 Background and History

The North Fork Crooked River was one of 40 river segments in Oregon that was designated as a National Wild and Scenic River in 1988. The North Fork Crooked River Management Plan (the Plan) (BLM 1993) divides the 34.2 miles of river into six management segments, from the headwaters near Serra Spring to 1.3 miles above the confluence with the Crooked River. The Plan establishes management direction to protect and enhance the river's outstandingly remarkable scenic, recreation, wildlife, and botanical values. The Plan states that the North Fork Crooked River will be managed to enhance the natural river values while also allowing for recreational values. To be consistent with this plan, any activities that degrade the habitat, water quality, or scenic value of the river corridor or its tributaries will be avoided.

3.9.2 Outstandingly Remarkable Values

For eligibility as Wild and Scenic, the Wild and Scenic Rivers Act requires a river to be undammed and possess at least one outstandingly remarkable value (ORV). Significant values for the river corridor are also identified during the evaluation process. The outstandingly remarkable and significant river values of the North Fork Crooked River include:

- Scenic – All segments contain valuable scenic attributes such as meadows, rocky cliffs, and old-growth ponderosa pine.
- Recreation opportunity – Segments 4 and 5 contain BLM public lands that provide valuable opportunities for pristine recreational activities such as fishing, hiking, wildlife viewing, photography, and hunting.
- Wildlife – A bald eagle winter roost site exists in Segments 4 and 5. Habitat improvements in the Plan aim to improve fisheries values and protect the Wild rainbow/ redband trout, a federally and Oregon State Sensitive species. Many

wildlife species such as mule deer, elk, coyote, and birds of prey rely on the corridor for habitat needs. Wildlife and fisheries values are also a key component of the corridors valuable recreational opportunities.

- Botanical – Sensitive plant species (*Calochortus longebarbatus* var. *peckii*) and old-growth ponderosa pine forests are significant values found in Segments 1-5. Native riparian conditions exist in the North Fork Crooked River Wilderness Study Area, encompassing portions of Segments 4 and 5.

3.10 WILDERNESS STUDY AREA

3.10.1 Background and History

Three WSAs are considered in the scope of this Environmental Assessment: the North Fork, the South Fork, and Sand Hollow (Figures 7 & 8). The South Fork and Sand Hollow WSAs are often considered as a single unit, with a dirt road separating them. It is currently proposed to enhance the collective wilderness values of the region by closing this road and officially combining the two WSAs. The Sand Hollow WSA was also included to help determine the cumulative effects analysis of the proposed action. For these reasons, the areas are described together in this analysis. However, the Proposed Action would not directly affect the Sand Hollow WSA, as no activity would occur within this WSAs boundary.

3.10.2 Wilderness Study Areas in the Project Area

3.10.2.1 North Fork Wilderness Study Area

The North Fork WSA totals 11,870 acres, 10,745 acres of which are BLM-administered land (BLM 1986). An additional 480 acres of private inholdings exist within the WSA boundary, but were not inventoried for wilderness potential. The North Fork WSA is bordered on the west by BLM and USFS roads, and on the north, south, and east by roads and private property. However, it is detached from any major highway. The North Fork Crooked River, a designated National Wild and Scenic River, flows through the WSA.

Uses and activities within the North Fork WSA include livestock grazing and management, hunting, fishing, hiking, sightseeing, and photography. There is abundant opportunity for year-round dispersed recreation in the river corridor. Permanent improvements have been made within the WSA and are detailed in section 3.10.3.1, below (U.S. Department of Interior, Bureau of Land Management. October, 1991. Wilderness Study Report, Volume I, North Fork Wilderness Study Area Report to Congress, pg. 680.).

Figure 7. North Fork Wilderness Study Area

Figure 8. South Fork Wilderness Study Area

The landscape of the North Fork WSA primarily consists of grassy plateaus and steep-walled basalt canyons. Vegetation in the drainages includes ponderosa pine, Douglas fir, and grass communities mixed with juniper, low sagebrush, and bunchgrass. Cheatgrass is common where there has been extensive grazing.

3.10.2.2 South Fork and Sand Hollow Wilderness Study Areas

The South Fork and Sand Hollow WSAs together encompass 27,482 acres of BLM-administered land (U.S. Department of Interior, Bureau of Land Management. October, 1991. Wilderness Study Report, Volume I, South Fork/Sand Hollow Wilderness Study Area Report to Congress, pg. 687), but are currently dissected by a dirt road. Closing this road and combining the areas into one would enhance wilderness values. Roads form the boundaries to the west, southwest, and southeast. A road and some private land border the areas to the north. The South Fork Crooked River flows through the South Fork WSA.

Grazing permits and mining claims for semi-precious stone are held within the South Fork WSA. Primitive, un-maintained routes are located primarily along the plateaus of the North and South Fork WSAs, primarily for fence and reservoir maintenance. Backpacking, camping, photography, nature study, big game (deer, elk and antelope) hunting, fishing and horseback riding are the most popular uses within the South Fork WSA. Big game hunting and sight seeing are the most popular uses within the Sand Hollow WSA (U.S. Department of Interior, Bureau of Land Management. October, 1991. Wilderness Study Report, Volume I, pg. 691). The basalt cliffs of the South Fork Crooked River Canyon and its tributaries dominate much of the landscape. A large, open plateau to the east of the South Fork Crooked River canyon, known as Twelvemile Table, provides unobstructed scenic vistas of the high desert. Low sagebrush/ Sandberg's bluegrass vegetation communities dominate the rockier tablelands. Grass-dominated communities and big sagebrush exist where soils are deeper. Grazing disturbance and absence of fire has led to increases in juniper and bluegrass (BLM 1980).

3.10.3 Evaluation of Wilderness Values

3.10.3.1. North Fork WSA

The *Final Decision Intensive Wilderness Inventory for the North Fork WSA* (pg. 349, BLM 1980) produced the following evaluation of wilderness values.

Naturalness

The North Fork WSA is generally in a natural condition, however it does contain several reservoirs, 6.7 miles of fence, 27 miles of primitive routes, 1 developed spring, and one mile of road (BLM 1986). A fire once burned 113 acres, which were later salvage-logged and reseeded (BLM 1979). Two grazing leases exist within the boundary. The access route flanking this area may be perceived as intrusive, and several off-site developments are visible as well. However, the geologic features and river canyon in this area exemplify nature's forces at work and a sense of naturalness still prevails.

Solitude

The relatively small size and narrow shape of this area limit its ability to provide outstanding opportunities for solitude. The topography and vegetation in the side canyons shield visitors from the sights and sounds of development, but many old, primitive logging routes remain in these tributary canyons, reminding the visitor of past logging activities and detracting from a visitor's ability to feel removed from the outside world. Two private inholdings within the river canyon restrict legal, public access, further limiting a visitor's sense of solitude.

Recreation

Several outstanding opportunities exist for primitive and unconfined recreation, including hiking, camping, sightseeing and fishing. There are also opportunities for hunting, backpacking, photography, and observing wildlife. The area is detached from a major highway, but two private inholdings restrict freedom of movement throughout the WSA.

Supplemental Values

The geologic features of this area create a unique scenic experience. Zoological and botanical features of interest may also be found.

In summary, the overall wilderness value of this area was determined to be limited. While geologically scenic, evidence of past logging activities detracts from the area's naturalness. Opportunities for solitude are also limited, resulting in diminished wilderness values. (U.S. Department of Interior, Bureau of Land Management, Wilderness Study Report. October, 1991. Volume I, pg. 678).

3.10.3.2 South Fork and Sand Hollow WSAs

The *Final Decision Intensive Wilderness Inventory for the South Fork and Sand Hollow WSAs* (pp. 352-355, BLM 1980) produced the following evaluation of wilderness values.

Naturalness

The South Fork and Sand Hollow WSAs appear to be in a natural state, primarily affected by the forces of nature. Several man-made structures and evidence of human activity are dispersed throughout both WSAs, but occur primarily in the South Fork WSA. Combined disturbances include 12 reservoirs, five cattle ponds, 13.4 miles of roadways, 1.5 miles of dead-end routes, and 21 miles of fence. Mining claims and disturbance are concentrated in the northern portion of the areas. However, due to the size of the units and the screening provided by vegetative and topographic features, human-made features do not dominate the landscape and the WSAs remain relatively natural.

Solitude

Outstanding opportunities for solitude are readily available in these WSAs. The large size and shape of the unit, combined with the potential for vegetative and topographic screening, allow visitors to explore these areas without encountering other visitors or signs of human activity. Hiking along the South Fork Crooked River allows for a strong sense of isolation within the vastness of this canyon.

Recreation

Outstanding primitive and unconfined recreational opportunities are obtainable throughout these WSAs. The South Fork Crooked River provides the opportunity for fishing, waterfowl hunting, nature study, hiking, photography and other river-related activities. Opportunities for backpacking, camping, hunting, photography, exploration, fishing, horseback riding and nature study exist throughout the WSAs, except for fishing opportunities, which are limited to the South Fork WSA.

Supplemental Values

The geologic formations of the Columbia River Basalt create an exceptional visual experience throughout the South Fork WSA, especially within the South Fork Crooked River Canyon. Mule deer winter range is also an important feature. A small herd of wild horses roam through this WSA.

In summary, the overall appearance of the South Fork and Sand Hollow WSAs is natural. The existing structures blend well with the environment so as to not limit naturalness, outstanding opportunities for solitude, or outstanding primitive, unconfined opportunities for recreation. The geologic features of the river canyon and its tributaries provide unique scenic qualities. Crucial deer winter range also exists in the western and northwestern portions of the area.

3.11 AREAS OF CRITICAL ENVIRONMENTAL CONCERN/RESEARCH NATURAL AREA

Three ACECs that were designated in the Brothers/La Pine Resource Management Plan/Record of Decision (BLM 1989) occur in the vicinity of the project area.

The North Fork Crooked River ACEC

This 6,737-acre ACEC lies primarily within the North Fork Wilderness Study Area (WSA) boundary, with 330 acres extending adjacent to the southwest of the WSA. The ACEC encompasses the rugged North Fork Crooked River canyon. Special relevant and important scenic, recreation, vegetation, and endangered species values include a native trout fishery and bald eagle winter roost sites. Off-road vehicle use is this area's primary management concern. Livestock grazing within the riparian area also produces severe impacts to the relevant and important values of this ACEC. These values are as follows: riparian areas, important fishery area, recreational use, exceptional scenery, and bald eagle winter roost area (Brothers LaPine Resource Management Plan, pg. 56).

The South Fork Crooked River ACEC

Within the South Fork WSA, 3,140 acres have been designated as the South Fork Crooked River ACEC, with the South Fork Crooked River Canyon as the central feature of significance. Special values related to the riparian vegetation and the fishery resource have been identified, as well as recreation and scenic values. Use of the riparian area by cattle and wild horses has been the primary management concern regarding the relevant and important values of this ACEC.

Forest Creeks ACEC/RNA

Two segments in this area, Fox Canyon (170 acres) and Rough Canyon (235 acres), have been identified as fulfilling key cells in the Oregon Natural Heritage Plan. Relevant and important values include the aquatic ecosystems within the first to third order stream system, which originates in ponderosa pine, and the riparian, willow communities. A management plan specific to this area has not been prepared, but the RNA status defines management as allowing those activities that do not degrade the values identified in the area's designation.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 SOIL

Erosion, soil compaction, and rutting could be possible impacts of the proposed action. Erosion should not be a concern unless the fence path is cleared of vegetation and topsoil on the steeper slopes. Ground disturbance should be kept to a minimum if the proposed action is implemented. Keeping the native bunch grass and topsoil intact will eliminate erosion concerns. Cheat grass invasion could be a concern on the warmer south aspect slopes with Lorella soil types, if the soil surface is cleared or disturbed. Soil compaction and rutting should not be a problem if the fence is installed in the dry summer months. Early spring saturated or wet surface conditions from snowmelt could pose a problem with vehicles generating ruts and creating compaction problems on designated routes within the North and South Fork WSAs. The shallow soils will make it hard in some cases to get fence posts into the ground. Braces and rock cribs might be necessary.

4.2 VEGETATION

The Proposed Action may impact the following vegetation to some degree. These plants are located on the North Fork Crooked River. There are no concerns for any vegetation on the South Fork Crooked River. No botanical threatened, endangered, candidate species or species of concern will be significantly impacted by the Proposed Action. The Botanist with the Prineville BLM has signed a waiver stating that the Proposed Action will have no significant impact on botanical threatened, endangered, candidate species, or species of concern. This waiver is included in Appendix D of this document.

Achnatherum hendersonii (Henderson's ricegrass) - This species occurs on many of the scab flats dominated by *Artemisia rigida* (stiff sagebrush). It is not all that uncommon in the project area. Impacts would mainly be related to any excessive trailing along the fence by cattle. Impacts to this species would occur if the fence went through a population or potential habitat.

Calochortus longebarbatus var. *peckii* (Peck's long-bearded mariposa lily) - This species occurs in riparian/meadow situations and in dry "meadows" that are moist in the early part of the season. These dry meadows are often dominated by *Wyethia* sp. and have rocky soils. The riparian/meadow situations would be expected along the North Fork and along any perennial tributaries. If a fence is improving the riparian area, this species should experience positive impacts. However, specialists are still trying to determine if livestock exclusion is actually detrimental to this species. This species seems to decrease in density when a population is afforded complete protection from grazing and other disturbances. It seems livestock might mimic the past fire regime by removing competing vegetation from these mesic environments. Ron Halvorson, Botanist, BLM Prineville District has no concerns regarding the proposed project and this species.

Lomatium ochocense spp. *nov.* (Ochoco biscuitroot) - A documented population of this species exists on the end of Battle Point. The proposed project and any designated access routes that would be used for the proposed project do not approach any known

populations of this species. Ron Halvorson, Botanist, BLM Prineville District has no concerns regarding the proposed project and this species.

4.3 VISUAL RESOURCES/RECREATION

The landscape along the north and south forks of the Crooked River is extraordinarily scenic, and visual quality is high. Erecting gap fences along the north and south forks of the Crooked River would alter the physical setting and visual quality of the landscape, and affect the landscape as viewed from sensitive viewpoints. The proposed fences would introduce new visual elements into the viewshed and alter the existing form and line that characterize the existing landscape. Direct impacts would be caused by the addition of fence posts and fencing wire to the landscape. Short-term visual impacts would be produced by fence construction activities, fencing equipment, and ground disturbance that would expose soil, disturb surrounding vegetation, and create dust from rock-drilling equipment. Fences that could not be adequately screened from view would produce long-term visual impacts. All of the visual impacts noted in this chapter are negative, in that they would detract from the existing natural landscape.

The methodology used in this EA is based on the visual resource management system used by the BLM to determine the magnitude of impacts from project disturbances on public lands. The methodology is also used as an aid in identifying mitigation measures for impacts to visual resources. In summary, this method finds that the degree to which a management activity affects the visual quality of the landscape depends on the visual contrast created between a proposed project and the existing environment (BLM 1986). Visual contrasts are analyzed according to the proposed changes to the form, line, color, and texture of the landscape, which constitute the visual “elements” of the landscape. As described in Section 3.3, Visual Resources, the analysis of visual contrasts are conducted from specific points of view deemed “visually sensitive,” based on factors that include the potential number of viewers of the proposed activity, the visibility of the proposed activity, and the length of time that viewers could see the proposed activity. The sensitive viewpoints are identified as Key Observation Points (KOP) and are shown on Figures 5 and 6.

4.3.1 The Proposed Action

Generally, the impacts to visual resources would be considered important if the effects of the Proposed Action were to exceed the BLM visual resource management objectives on lands under BLM jurisdiction. As described in Section 3.3, the VRM Class I objective is to preserve the existing character of the landscape, allowing for natural ecological changes, but still permitting very limited management activities. The level of change to the characteristic landscape should be very low and should not attract attention.

North Fork Crooked River

KOP1 (Private Land)

The proposed fence would produce minor visual contrasts with the existing landscape. The proposed fence would be partially visible to view at its northern and southern ends where it would be anchored to the cliff faces, but views of the fence would not be

obvious to the casual viewer. Riparian vegetation and trees in the foreground and middleground would obscure all other views of the proposed fence line. Adjusting the proposed fence line further back into the canyon could mitigate visual impacts caused by the fence line along the cliff faces. This would minimize casual views of the fence, and minimize long-term visual impacts.

KOP2 (Private Land)

The proposed fence would be hidden from view, when viewed from the river, if the proposed fence line is adjusted to set back into the trees and along the cliffs to the west. There would be minimal long-term visual impacts caused by this fence.

KOP3 (Private Land)

The proposed fence line would be visible to casual view from the river, creating minor line and form contrasts with the surrounding vegetation and rock. Adjusting the proposed fence line to run upslope and into the dense cover of trees would minimize long-term visual impacts by completely hiding the fence from view along the river, and still allow the fence to be anchored at both ends to cliff faces. As described in Chapter 3 Visual Resources, an old, partially collapsed fence runs along a section of the proposed fence line.

KOP4 (Private and Public Land)

When viewed from the river, the proposed fence line would be completely hidden either by tree cover or by its setback from the edge of the cliffs. When viewed from the ridge tops along the river, the fence line would not be visible to the casual viewer because of a combination of existing vegetation cover, the viewing angle, and viewing distance to the fence. This fence would have minimal long-term visual impacts on the landscape.

KOP5 (Private Land)

The proposed fence line presents visual impacts similar to those seen along KOP3; the present alignment of the proposed fence would be visible from the river and would create form and line contrasts with the surrounding landscape. However, when the fence line is adjusted to run further upslope into the trees, the long-term visual impacts would be minimal and would not prevent the fence from being anchored to cliff faces at both ends.

KOP6 (Public Land)

As viewed from the river, the proposed fence line would be visible at both ends where it would be anchored to cliff faces, creating line and form contrasts with the surrounding landscape. Trees would obscure the central segment of the fence. Modifying the proposed fence by adjusting the fence line to run further into the side canyon would obscure the fence from casual view, thus minimizing long-term visual impacts, and still allow the fence ends to be anchored to cliff faces.

KOP7 (Public Land)

As viewed from the river, the proposed fence would be completely hidden from view by trees. Also, when viewed from the ridge tops along the river, the fence would remain

hidden because of the dense growth of conifers in the vicinity of the proposed fence line. This fence would have minimal long-term visual impacts on the landscape.

KOP8 (Private Land)

With the exception of a short segment of the proposed fence line that would run across an exposed slope, the fence would otherwise be obscured from view along its length by basalt cliffs and dense stands of trees. The exposed fence segment is approximately 100 yards upslope from the river and would present minor line and form contrasts with the natural landscape and would be in view of casual observers. Along the area of exposure, the fence would be obscured if it were adjusted to run upslope into dense stands of trees and scrub. Modifying the present fence line would screen the fence from casual view and create minimal long-term visual impacts.

KOP9 (Public Land)

From the point of view of the river shoreline, the northern end of the proposed fence line would be visible along the exposed slope leading down to a cliff anchor point. High, steep cliff walls along the river and dense vegetation in a side canyon within which the southern end of the fence would be anchored would hide all other views of the proposed fence. The exposed segment of fence would present line and form contrasts within the natural landscape and would be visible to the casual viewer along the river. Adjusting the exposed segment of fence by shifting it further upslope would obscure it from casual view, still permit the northern end of the fence to be anchored to the cliff face, and reduce visual contrasts and impacts. The adjusted fence alignment would have minimal long-term visual impacts on the landscape.

KOP10 (Public Land)

The proposed fence line runs through a dense stand of trees. The fence would be hidden from casual view both from points of view along the river and from the cliff on the opposite side of the river. This fence would have minimal long-term impacts on the natural landscape and no line or form contrasts would be evident.

KOP11 (Public Land)

To the casual viewer looking upslope from the river, the proposed fence would not be visible. The proposed fence runs through a dense stand of trees for its entire length. In addition, the cutbank along this segment of the river would provide additional visual screening of the fence line. This fence would have minimal long-term impacts on the natural landscape and no line or form contrasts would be evident.

KOP12 (Public Land)

Most of the proposed fence line would be visible to casual view from the river, and would create long-term line and form contrasts with the natural landscape. Adjusting the fence line upslope would remove it from casual view and greatly reduce line and form contrasts. During fence construction, the modified fence alignment would be tied into the cliffs to exclude livestock. As described in Chapter 3 Visual Resources, an old, partially collapsed fence runs along the southern segment of the proposed fence line. Mitigation to reduce visual impacts of the present fence alignment might include painting the fence

posts with a flat or semi-gloss color that blends in with the surrounding environment, erecting fence posts at varied distances from each other in order to reduce the regularity of the structure, and adjusting the proposed fence line alignment so that the fence could be located next to existing trees and rocks.

South Fork Crooked River

KOP14 (Public Land)

With the exception of the northernmost 100 yards where the trees are sparse, the proposed fence line runs across heavily wooded slopes, approximately one-half mile from the edge of the river. The fence would create minimal long-term line and form contrasts with the landscape. Field experience with existing BLM fences in the area suggests that this fence would most likely not be visible to casual view from the river, given the viewing distance from the river and the screening effect of the trees. Adjusting the proposed fence line so that it runs into a shallow draw at its northernmost end, where the trees are widely spaced, would mitigate the fence's visibility where it would be anchored to the northern cliff face and screen it from casual view.

KOP16 (Public Land)

This proposed fence line would create minimal line and form contrasts with the landscape. The fence would run approximately one-half mile from the edge of the river on a rock-, sagebrush-, and juniper-covered slope. As mentioned in the description of KOP14, experience with existing fence BLM fences in the area strongly suggests that this fence would not be visible to casual view from the river. A sufficient density of trees, brush, and rocks exists along the proposed fence line to act as a screen for this fence.

4.3.2 The No Action Alternative

The No Action alternative would result in no change to the existing color, form, or texture of the landscape.

4.3.3 Impacts Summary

Fourteen gap fences are proposed for erection within the north and south forks of the Crooked River: twelve in the North Fork and two in the South Fork. The Proposed Action would produce changes in the visual character of the landscape because the fences would add unnatural visual elements to the existing landscape.

All of the proposed fences would have visual protection measures applied. These measures would include:

- 1) Aligning the fences so as to take advantage of existing natural cover, such as vegetation, rocks, and topography;
- 2) Using non-reflective, appropriately colored paint on fence posts to reduce visibility;
- 3) Staggering fence posts to reduce their regularity and minimize their artificiality.

Modifying the fence alignment so that the fence could be screened by existing trees, rocks, and vegetation would help to minimize the affects on scenic quality. Keeping the

fenceline off of ridge tops would also reduce the affects on visual quality. Visual Resource Management Class I objective does allow limited management activities. If erected, none of the fences would exceed the VRM Class I objectives if efforts were made to use visual mitigation techniques to reduce visual contrasts.

4.4 WILDLIFE

Issue 1: The proposed fence construction would increase the presence of obstacles that could potentially injure and disrupt movement patterns of big game animals.

Proposed Action Alternative

Implementation of the Proposed Action could create potential barriers to movement patterns and foraging corridors of resident big game populations. Resident big game species have established winter range habitat along both the east and west sides of the North and South Forks of the Crooked River. The proposed new fences will cross 12 drainages on both the east and west sides of the North and South Forks of the Crooked River. Big game animals use the draws and drainages that are proposed for fencing as travel corridors into the river bottom due to the ease of movement through the area. The fences could create long-term obstacles that big game animals would have to negotiate and could disrupt current movement patterns and foraging corridors of resident populations. Placement of fences across these draws and drainages also creates the potential for animals traveling these corridors to become trapped, entangled, or injured while crossing the fences. Fences that are located within these travel corridors increase the likelihood of injury and entanglement because the animals are unfamiliar with the need to cross the fences.

Potential impacts from construction of the new fence would be mitigated by constructing the fence to wildlife specifications to ease passage. The BLM specified wire heights and fence construction methods would limit the chances of animals being caught or injured while crossing the fence. Attaching biodegradable flagging to the top strands of these newly constructed fences could increase the fences' visibility to wildlife, and thus minimize injury and entanglement. Once resident wildlife species learn where these new fences are located, the potential impacts from injury and entanglement would be decreased.

No Action

If the No Action Alternative was selected, there would be no direct, indirect, or cumulative impacts associated with the issue of potential injury or disruption of movement patterns of big game animals.

Issue 2: Construction of the proposed gap fencing could lead to improved riparian habitat and forage potential for wildlife.

Proposed Action Alternative

The Proposed Action could potentially improve riparian habitat and thus provide greater forage potential for big game animals and other wildlife. By constructing fences across

these sections of the draws and drainages, access to riparian habitat by cattle and wild horses is limited. Thus, the Proposed Action could have a positive impact on resident big game populations as well as other wildlife species. Fence construction would exclude livestock and possibly wild horses from the riparian areas along travel corridors and river bottoms. This exclusion could lead to better riparian forage along the river bottoms for the big game and other wildlife species.

No Action Alternative

The No Action Alternative would not have the same potential of increasing riparian vegetation and forage, and thus wildlife habitat, when compared to the Proposed Action. Unmanaged livestock and wild horses could continue to utilize riparian habitats season long, thus reducing the potential for improvement of riparian wildlife habitat and forage.

4.5 THREATENED, ENDANGERED, CANDIDATE SPECIES, AND SPECIES OF CONCERN

Bald eagles

Proposed Action

All known bald eagle nest and roost locations along the North Fork Crooked River are greater than ½ mile from any locations where fence construction would occur. There is a possibility that brief disturbance could occur to foraging eagles along the North Fork Crooked River. However, there is an abundance of locations that are available immediately surrounding the construction areas for foraging.

If access to construction locations on the North Fork Crooked River between January 1 and August 31 is planned, known nest sites will be avoided by a minimum of ½ mile line of site. Along the South Fork Crooked River, no known nest sites are currently known to occur within several miles of proposed fence locations. However, the same minimum nest avoidance distances in relation to the time of year should be followed.

If new nesting sites are recorded before or during construction on either the North or South Forks of the Crooked River, within ¼ mile non line-of-site or ½ mile line-of-site of any proposed project sites, construction should not be conducted between January 1 and August 31 (Joint Aquatic and Terrestrial Programmatic Biological Assessment April 2001 – April 2003). If the Proposed Action were carried out in the late summer after young have fledged (i.e., August 31) or in the fall months, any potential impacts on bald eagles would be mitigated.

Bald eagles have been increasing in Oregon for the past decade. Current population numbers are above those established in the recovery goals for this zone (Isaacs and Anthony, 2002).

No Action

There will be no direct, indirect, or cumulative impacts to bald eagles or their habitat from the No Action Alternative.

Greater sage grouse

The greater sage grouse is a federal species of concern. Populations of greater sage grouse have been documented along portions of the South Fork Crooked River. Fences in sage grouse habitat pose hazards because they provide additional perch sites for raptors and because sage grouse can be injured or killed when they fly into these structures (Call and Maser 1985; Bureau of Land Management 2000).

Proposed Action

Two known sage grouse leks have been identified along the east side of the South Fork Crooked River. Sage grouse have been known to have nesting sites within four miles of an active lek (Call and Maser 1985; Bureau of Land Management 2000). However, because of the placement of fences on a steep cliff side or forested areas, and because the travel distances for sage grouse are close to maximum nesting ranges, fence construction is not expected to have direct, indirect, or cumulative impacts on sage grouse from the Proposed Action Alternative.

No Action

There will be no direct, indirect, or cumulative impacts to sage grouse or their habitat from the No Action Alternative.

4.6 GRAZING MANAGEMENT

4.6.1 Wild Horses

Proposed Action

No long-term impacts to wild horses are expected from the proposed action. Wild horses would be excluded from the river canyon as a consequence of implementing the proposed project. Wild horses are expected to water and forage on the uplands, rather than the river corridor, which is not part of the Liggett Table Wild Horse Herd Management Area. Fencing portions of the project area is not expected to result in negative long-term impacts to wild horse use patterns, forage allotments, or access to existing water sources such as reservoirs. Although wild horses have always been excluded from the river corridor by the management decisions in the Brothers/LaPine RMP, horses can still access the river corridor. The project is consistent with the management direction for the wild horse herd as specified in the RMP.

No Action Alternative

Wild horses would continue to access the riparian corridor if the new fence sections are not constructed. Opportunities to promote the recovery and reestablishment of riparian vegetation, associated herbaceous vegetation, and stabilization of streambanks would not occur if wild horses continue to access the riparian corridor. The riparian areas would continue to be noncompliance with the management directives of the various management plans.

4.6.2 Livestock

Proposed Action

The Rabbit Valley Allotment encompasses the North Fork Crooked River. Cattle in this allotment can access the river, although it was assumed that most cows do not graze in

the river bottom due to the difficult access (Zalunardo, personal communication). Livestock occasionally graze in the river bottom where they typically remain for the duration of the use period. The proposed fencing would prevent access to the river by the cattle. However, because the river's riparian corridor is not a significant portion of the grazing allotment, the allotment's total AUMs will not be adversely affected through reduction in numbers. Following completion of the project, the total acreage of the Rabbit Valley Allotment will remain the same, as will the AUMs and access to upland water sources.

No impacts to the other allotments or livestock operations are expected from the proposed project. The fence will help to exclude cattle from the riparian areas. The project complies with the various RMPs, which describes management of riparian areas. No change in livestock management is expected as a result of the fence construction. The river canyon area would become a riparian pasture available to grazing when appropriate. There would not be any increase in livestock AUMs as a result of the proposed action. The proposed project will be consistent with the Management Areas Allocations and Standards and Guidelines and will comply with the Management Goals for the allotments as specified in the Brothers/LaPine and North Fork Crooked River RMPs.

No Action Alternative

Livestock would continue to access the riparian corridor if the new fence sections are not constructed. Opportunities to promote the recovery and reestablishment of riparian vegetation, associated herbaceous vegetation, and stabilization of streambanks would not occur if livestock continues to access the riparian corridor. The riparian areas would continue to be noncompliance with the management directives of the various management plans.

4.7 RIPARIAN/STREAM CHANNEL CONDITIONS, WATER QUALITY, AND FISHERIES HABITAT

4.7.1 Riparian/Stream Channel Conditions

Proposed Action

Construction of the new fence sections and reconstruction of damaged sections will improve the success in managing the access of cattle and wild horses within the project area. Current unregulated use by cattle and horses has impacted riparian vegetation and impeded its development. Once cattle and horses are more successfully excluded from the riparian areas, riparian vegetation, including willows, alders, and herbaceous vegetation will reestablish. Better management of livestock in the riparian areas of the North and South Forks of the Crooked River and excluding wild horses from the South Fork Crooked River would promote recovery and vigor of riparian vegetation. As riparian conditions improve, associated stream channel conditions and aquatic habitats would improve as streambanks stabilized and stream channels narrow and deepen.

No Action Alternative

If existing fences are not repaired or new fences are not placed in access points there may be continued unregulated livestock access to the riparian areas. This access would result in overgrazing of riparian vegetation. Stream channel banks would continue to erode and

the channel would continue to widen. As a result, aquatic habitat would continue to degrade. In addition, riparian areas would continue to be non-compliant with the management objectives of various BLM management plans.

4.7.2 Water Quality

Proposed Action

Implementation of the Proposed Action Alternative would result in improved downstream water quality conditions in the North and South Forks of the Crooked River.

Water quality for the North and South Forks of the Crooked River upstream of the project area would not be improved by implementing the Proposed Action Alternative. However, downstream water temperatures may be improved by implementing this alternative. With better management of livestock in the riparian corridors of the North Fork and exclusion of wild horses in the South Fork, hardwoods and herbaceous vegetation may increase over time resulting in increased stream shade. Increased shade levels will reduce the amount of solar radiation absorbed by surface waters. In addition, improved abundance and vigor of riparian vegetation would improve stream channel and bank stability, which would result in a narrower, deeper stream channel, improved channel morphology, with reduced channel width, and would reduce the amount of stream surface area subject to incoming solar radiation, thereby reducing stream temperatures.

No Action Alternative

Water quality within the North and South Forks of the Crooked River would not improve under the No-Action Alternative. Downstream water temperatures may continue to increase as a result of implementing the No Action Alternative. If unregulated grazing is continued along the riparian corridors of the North and South Forks, stream shade produced by riparian vegetation may never increase and channel morphology would not improve. As a result, surface water will continue to be exposed to solar radiation and contribute to higher water temperatures within and down stream of the project area.

4.7.3 Fisheries Habitat

Proposed Action Alternative

Improved management of livestock and wild horse access to riparian areas of the North and South Forks of the Crooked River would result in improved habitat for native redband trout populations and aquatic organisms. Through the indirect processes of improving riparian vegetation and reducing water temperatures within the project area, aquatic organisms and redband trout habitat would be improved.

All improvements as stated in previous sections of this EA to riparian vegetation, stream channel condition, and water quality would result in improved habitat quantity and quality for native redband trout and aquatic organisms.

No Action Alternative

Implementation of the No-Action Alternative would result in no improvement in the ability to control access of livestock to the North or South Forks of the Crooked River, or

control wild horses within the South Fork Crooked River. Livestock and wild horses would continue to gain unregulated access to the project area in a manner inconsistent with management direction to improve fisheries habitat by managing riparian areas and water quality. The existing conditions of riparian vegetation, stream channels, and water temperature, as they pertain to unregulated livestock and wild horse impacts, would not be improved by this alternative.

4.8 CULTURAL RESOURCES

Due in large part to our understanding of the land use patterns for this area, the results of previous relevant inventories/research, and the nature of the topography involved in this proposal, both project areas are considered low probability for the location of historic properties (i.e., National Register eligible sites). In addition, implementation of the proposal will involve very low impact construction techniques (hand construction, rock cribs and steel t-posts). It is concluded, therefore, that from an archaeological perspective the proposed project is considered a “no effect” action and no further inventory will be necessary to proceed.

As stated in section 3.8, both the Northern Paiute and several Sahaptan-speaking groups are known to have used the greater area of the proposed project. The BLM, however, has no knowledge of Native American Indian religious sites or traditional use locations within the proposed project boundaries.

4.9 WILD & SCENIC RIVERS

Gap-fence construction is proposed in ten new locations and re-construction in two existing fence locations within the North Fork Crooked Wild & Scenic River boundary. The fences would temporarily exclude livestock from the river corridor, thus reducing impacts to the riparian vegetation. Most fences would be placed near the top of drainages or within the river corridor at locations identified to manage livestock access to riparian vegetation. Activities within a Wild and Scenic river boundary are permitted if they meet the criteria of protecting and enhancing the river’s outstandingly remarkable values (ORVs). The ORVs of the North Fork Crooked River include scenic, recreation, wildlife, and botanical. Of these, impacts to scenic value would likely occur at key viewpoints. However, as discussed in Section 4.3 Visual Resources, fences would not be visible to the casual observer or from most views from the river. Vegetative screening would further reduce impacts, resulting in minor visual contrasts with the existing landscape. Erecting gap fences would produce positive effects by protecting the riparian meadows along the river, which have been identified as an important component of the ORVs. Managing livestock grazing within the river corridor would protect the meadow ecology and meet the management direction of the North Fork Crooked River Management Plan. Fencing would also be consistent with objectives of the management direction for rivers designated as Wild and Scenic.

4.10 WILDERNESS STUDY AREA

4.10.1 Evaluation of Wilderness Values

This section evaluates potential effects of the Proposed Action on three Wilderness Study Areas (WSAs). Construction of 14 gap fences is proposed; twelve in the North Fork and

two in the South Fork Crooked River. Direct and cumulative impacts to the WSAs of these drainages are analyzed based on the potential for degradation of their inherent wilderness values. The wilderness criteria used in this assessment are: naturalness; outstanding opportunity for solitude; outstanding opportunity for primitive recreation; and possession of supplemental values. The Interim Management Policy for Lands Under Wilderness Review (IMP), BLM Manual H-8550-1 (BLM 1995), requires additional, specific analysis of a proposed action on wilderness values. This is considered in section 4.10.3.1 Other Considerations for Evaluating Impacts.

WSAs must be managed so as to not impair their suitability for preservation as wilderness. When the use, activity, or facility is terminated, the wilderness values must not have been degraded so far as to negatively affect the area's potential for wilderness designation.

Chapter III of the IMP specifically addresses livestock developments (pg. 42). New, permanent fences may be built and maintained if, after completing the required environmental analysis, they are found to truly enhance wilderness values and are substantially unnoticeable. Since wilderness designation is a possibility, new fences cannot require motorized access for maintenance. Management objectives defined in the Brothers/La Pine Resource Management Plan (BLM 1989) are also relevant in assessing potential impacts to the WSAs. The desired future condition of the river corridor includes maintenance of a properly functioning riparian corridor, defined as containing a diversity of native plants that stabilize the bank and provide shade and wildlife habitat.

4.10.2 North Fork Wilderness Study Area

Naturalness

The Proposed Action would directly affect the natural quality of this WSA by introducing 12 new human features (small gap fences) into isolated locations along the river and in tributary drainages. This activity would reduce naturalness within the immediate surroundings. Two fence sections would be visible from the river corridor, but incorporating existing vegetation and topography for screening would reduce these impacts. Fencing would be limited to small fence segments totaling approximately 1.4 miles within the WSA, and would be constructed using a minimal amount of non-reflective materials that blend with the surrounding landscape. Fence lines would be staggered and placed within existing vegetation. The existing human-made structures in this area are not considered to dominate the area's appearance. Additional structures as described in the Proposed Project would not affect the area's naturalness. The primary influence on the landscape would continue to be the forces of nature.

The proposed gap-fence construction would protect native riparian vegetation within the riparian corridor from livestock grazing impacts. In the short and long-term, the natural character of riparian meadows and riparian vegetation along the river would be enhanced. Controlling livestock use within this river canyon would also reduce trampling of the streambank and surrounding vegetation. Erosion and water temperatures would be reduced, thus improving water quality and in-stream habitat and resources. The Proposed Action is consistent with recognized exceptions to the IMP non-impairment standards, in

that it would protect and enhance the wilderness value of naturalness. These improvements would also meet management guidelines of the Brothers/La Pine RMP and the North Fork Crooked Wild & Scenic River Management Plan by helping to attain the desired future condition of the river corridor, which includes maintenance of a properly functioning riparian corridor.

Solitude

The Proposed Action would positively affect the overall opportunity for solitude in the river corridor by controlling domesticated livestock use within the canyon of the North Fork Crooked River. Limiting livestock use within this river canyon would enhance the feeling of being far from human influence and activities. The majority of the fencing would not be visible and would be designed to maximize vegetative and topographic screening. Due to limited fencing in isolated locations and due to topographic and vegetative screening of these fences, visitors would generally not notice fences and the feeling of solitude would not be diminished.

The sense of solitude of visitors accessing the side-canyons of the North Fork Crooked River would be momentarily affected if fencing were encountered. Seclusion is often sought in these side-canyons, which offer additional vegetative and topographic screening from human-made disturbances. However, crossing a fence would be a relatively easy, short-term impact to the visitor, as fencing would be minimal and only located in isolated locations. Hiking would not be restricted, but horse riding in side canyons would be limited where fences are located. Existing opportunities for solitude in this WSA were determined to be limited because of the presence of old logging roads, private in-holdings restricting legal public access in the river canyon and narrow shape, limiting opportunities for solitude to the river canyon. However, the limited addition of fences would not further detract from the wilderness value of opportunities for solitude.

Primitive Recreation

The Proposed Action would have no detrimental effect on opportunities for primitive and unconfined recreation, as the fences would not prohibit visitors hiking within the WSA. Horseback travel would be inhibited in the side canyons where fences are located. However, the quality of primitive recreation opportunities such as fishing, hiking, and photography would be increased by controlling livestock in the riparian area within this WSA. Fencing would be constructed to impede livestock movement, but would not be impassible to humans.

Supplemental Values

The Proposed Action would not affect the geologic, botanic, or zoological supplemental values of this WSA. As discussed in section 4.3 Visual Resources, scenic quality would be affected in localized areas, but fencing would likely only be visible from the river in two instances. Also, all fences would be constructed using materials and methods to minimize visual impacts. Gap-fence construction would not impact the status of plants or animals.

4.10.3 South Fork and Sand Hollow Wilderness Study Areas

Naturalness

The Proposed Action would introduce two new human features (small gap fences) into the South Fork WSA, which would reduce naturalness within the structures' immediate surroundings. However, these gap fences would have limited effects on the overall naturalness of the South Fork WSA. Proposed fencing in this area would be minimal, limited to side canyons and would not occur adjacent to the river, nor be highly visible from the river corridor. Also, as seen with existing fences, vegetative and topographic screening would be used to mitigate any visual impact. Existing fences are not considered to dominate the landscape. The addition of two more sections would not further degrade the area's naturalness. The forces of nature continue to appear as the primary influence on the landscape.

Gap-fence construction is proposed to manage livestock grazing in riparian areas, ultimately enhancing the wilderness values provided by the natural vegetation communities. Water quality and in-stream resources would also improve as grazing is limited and erosion and water temperatures are reduced. This management activity is consistent with recognized exceptions to the IMP non-impairment standards. It also supports management direction of the Brothers/La Pine RMP, which includes maintenance of a properly functioning riparian corridor.

No direct impact would occur to the naturalness of the Sand Hollow WSA, as the Proposed Action would not occur within its boundary.

Solitude

The Proposed Action would positively affect the opportunity for solitude in the South Fork WSA. Eliminating wild horses from the South Fork Crooked river corridor and managing livestock grazing in riparian areas would enhance the feeling of being far from human influences and activities. It would also add to the sense of seclusion by preserving the naturalness of the area. This is consistent with exceptions to the IMP non-impairment standards.

No impact would occur to opportunities for solitude within the Sand Hollow WSA, as the Proposed Action would not directly occur within its boundary.

Primitive Recreation

The Proposed Action would have limited effects on opportunities for primitive and unconfined recreation in the South Fork WSA. The presence of fencing would not restrict most recreational opportunities, nor would it likely be noticed from visitors recreating in the river corridor. When encountered, fences would reduce primitive and unconfined recreation opportunities by having to traverse them. Horseback riding opportunities would be constrained where fences are located. However, the quality of primitive recreation opportunities such as fishing, hiking, and photography would be increased through the reduction of livestock within the riparian area of this WSA.

Opportunities for primitive and unconfined recreation in the Sand Hollow WSA would not be affected, as the Proposed Action would not directly occur within the WSA boundary.

Supplemental Values

Fence construction would not impact the scenic geological resources. The Proposed Action would not affect supplemental values of the South Fork WSA.

No impact would occur to the supplemental values of the Sand Hollow WSA, as the Proposed Action would not directly occur in the area.

4.10.3.1 Other Considerations for Evaluating Impacts

This section discusses the Procedures For Evaluation of Proposed Actions of the IMP Handbook (pp. 19-24). As the Proposed Project would occur within the boundaries of a WSA, these procedures would apply.

Step 1. Review the Definition of Wilderness

The intent of the Wilderness Act of 1964 is to protect areas in their natural state, untrammelled by man and lacking permanent structures, where the forces of nature remain as the area's primary influence. Any activities that would affect a WSAs consideration for wilderness designation are to be avoided. Management considerations of the WSAs are directed by the IMP.

Step 2. Consider Exceptions and Limitations to the Non-impairment Standard

Management activities or temporary uses that would not create surface disturbance or result in permanent structures may be allowed under the IMP non-impairment standard. Temporary implies that the activity or structure could be terminated or removed upon wilderness designation. Of the exceptions (listed above in section 4.10.1), permitting uses and facilities that protect or enhance the WSAs inherent wilderness values is consistent with the purpose and need of the Proposed Action.

Step 3. Notify the Public

Public involvement will occur upon completion of this EA and prior to a decision.

Step 4. Conclude whether the Use or Facility will meet the Non-impairment Standard.

Gap fencing would be constructed following the Minimum Tool Concept (IMP Handbook, pg. 18), which states that methods and equipment used would have the least impact on the quality of the wilderness experience. Construction materials, including posts and wire, would be temporary in that they could be removed, if necessary. Methods and materials would be chosen by the standard to produce substantially unnoticeable effects. The purpose of the Proposed Action is to protect the river corridor and riparian area from grazing impacts. Gap-fence construction would be an exception to the non-impairment standard by meeting the intent of enhancing wilderness values. Gap fencing would also result in enhancing the identified ORVs of the Wild and Scenic River designation.

Step 5. Step 5 – Consult Guidelines for Specific Activities

Chapter 3 of the IMP Handbook outlines specific guidelines for livestock developments, including fences. Criteria for allowing new fences state that new fences may be constructed if they enhance wilderness values, are substantially unnoticeable, and do not require motorized access for maintenance. Grazing, as a grandfathered use, is allowed to continue in these areas in the same manner and degree, but produces negative impacts to the river corridor. Gap fences would address this problem by protecting sensitive riparian areas from grazing impacts. The gap-fence construction of the Proposed Action would meet the specific criteria for permitting livestock fences.

Step 6: Gather information: Prepare EA or EIS

This step serves as a safety check to ensure that all points required to complete a proper analysis have been considered. The first point, a precise description of the Proposed Action, is included in Chapter One of this Environmental Assessment. The second point requires a description of the affected environment. This is found in Chapter 3. The third point, a written assessment of potential impacts, has been discussed throughout this chapter, Chapter 4.

4.10.4 Impacts Related to the No-Action Alternative

Without gap-fence construction, livestock would continue to access the river corridor and grazing impacts to riparian vegetation along the North and South Forks Crooked River would also continue. Over time, direct and indirect impacts related to grazing activity would cumulatively act to further degrade the riparian and water resources of the area.

Table 3. Wilderness Study Area Impacts Summary

	North Fork WSA	South Fork WSA	Sand Hollow WSA
<i>Criteria for Evaluation</i>			
Naturalness	Structures would have limited effects on the overall naturalness of the area. Positive effect on ecological values.	Structures would have limited effects on the overall naturalness of the area. Positive effect on ecological values.	No effect. Fence construction is not proposed in this WSA.
Solitude	Positive effect on solitude, as areas grazed would be managed.	Positive effect on solitude, as areas grazed would be managed.	No effect. Fence construction is not proposed in this WSA.
Recreation	Limited effects on primitive, unconfined recreation opportunities. Long-term increase in quality of primitive	Limited effects on primitive, unconfined recreation opportunities. Long-term increase in quality of primitive	No effect. Fence construction is not proposed in this WSA.

	recreation opportunities.	recreation opportunities.	
Supplemental Values	Positive effect to ecological values.	Positive effect to ecological values.	No effect.
Able to be Rehabilitated	Yes.	Yes.	No effect.
Cumulative Effects	No cumulative impacts. WSA retains wilderness values.	No cumulative impacts. WSA retains wilderness values.	No cumulative impacts.
<i>Interim Management Plan Direction</i>			
Consistency with IMP Handbook and Non-Impairment Direction	Yes.	Yes.	Yes.

4.11 AREAS OF CRITICAL ENVIRONMENTAL CONCERN/RESEARCH NATURAL AREA

Gap-fence construction would be consistent with management direction and goals of the three areas of critical environmental concern (ACEC) that occur along the North and South Forks of the Crooked River. Fence segments would restrict livestock access to the river corridor, thus reducing grazing impacts to the riparian areas and water quality of the North and South Forks.

No direct impacts would occur within the North Fork Crooked River ACEC or the South Fork Crooked River ACEC. Two fence segments, 11 and 12, would be visible from areas of the Forest Creeks ACEC/RNA – Rough Canyon segment. These visual impacts would be mitigated through the selective use of visually sensitive construction materials, and vegetative and topographic screening. The fence would not degrade the relevant and important values for which the area was designated.

The Proposed Action would not negatively impact the relevant and significant values identified in the designation of the North Fork Crooked River ACEC, the South Fork Crooked River ACEC, and the Forest Creeks ACEC/RNA.

4.12 CUMULATIVE IMPACTS

Cumulative impacts to riparian/stream channel condition and water quality: If the Proposed Action Alternative is chosen, the ability to manage livestock access to the riparian areas of the North and South Fork would be improved, and is expected to promote the recovery of riparian species. Shade levels on stream reaches may be increased and solar radiation on surface waters reduced. Warmer water entering the project area from upper watershed reaches will maintain temperatures through the project area and not increase downstream temperature problems. As riparian areas continue to recover through time, the project area will contribute less to downstream temperature problems.

Cumulative impacts to riparian/stream channel condition and water quality: If the No Action Alternative is chosen, the loss of existing riparian vegetation resulting from unregulated livestock and wild horse access may impede the recovery of riparian conditions along the North and South Forks of the Crooked River. Riparian species such as willow and alder provide shade to stream channels helping to maintain water temperatures along shaded reaches. If the recovery of the riparian species is not permitted to occur, water temperatures downstream of the project area would be warmer than when the water entered the project area. Management actions in the upper reaches of the watershed have impacted the water entering the project area. If the No Action Alternative is implemented water temperature may be warmer in downstream reaches resulting from the lack of shaded stream reaches in the project area that limit additional absorption of solar radiation.

Cumulative impacts to cattle: Cattle do not get water from the river exclusively; the cattle generally get water from the reservoirs above the river canyon. Fencing and managing livestock use within riparian areas will not significantly reduce the foraging areas for the cattle. To be kept out of the river bottoms will not cause the cattle hardship. The Proposed Project will not have a cumulative impact on the cattle that graze on public and private lands.

Cumulative impacts to grazing permittee: Fence construction will impact the permittee as the maintenance of the new fence sections will be turned over to cattle owners.

Cumulative impacts to grazing permittee: The cattle can be in the river bottoms legally during permitted use periods. However, complaints from recreational users in the North Fork Crooked River caused the BLM to request that the cattle owners collect the cattle from the river bottoms and move them out of the canyon areas and back on top of the hills. With the fences in place the permittee will not have to do this anymore. This is a positive impact to the permittee and could offset the negative impact of having to maintain the new fences.

Cumulative impacts to wild horses: Wild horses do not get water from the river exclusively; they get water from the reservoirs above the river canyon. Fencing off the riparian areas will not significantly reduce the foraging areas for the horses. To be kept out of the river bottoms will not cause the horses hardship. Horses are negatively impacting the riparian areas on the South Fork by over grazing riparian areas. Limiting their access to these sensitive areas will eventually bring about positive changes to the riparian areas by allowing the areas to recover. The BLM will also be in compliance with their land use plans by keeping wild horses within the recognized Herd Management Area (HMA).

Cumulative impacts to hunting and wildlife viewing: If the Proposed Action Alternative were chosen, the riparian areas would begin to recover. As the riparian areas improve, they will begin to offer superior foraging opportunities for the big game species. This will lead to better overall health of the big game population. Healthier big game will provide better specimens for the hunters and the wildlife viewers.

Cumulative impacts to soils: The presence of the fences may lead to trailing along the fences by livestock and, on the South Fork, by wild horses. Trailing could lead to soil compaction along some of the fences.

Cumulative impacts to wildlife: Entanglement issues are mostly mitigated by fence building techniques, however, new fence sections are being put in, therefore, there will be increased instances of entanglement simply because there will be more obstacles for wildlife to navigate over.

Cumulative impacts to the area users: Fences would not be visible to the casual observer or from most views from the river. Vegetative screening would further reduce impacts, resulting in minor visual contrasts with the existing landscape; therefore, there would be some cumulative impact to the recreational users of the areas. Erecting gap fences would produce positive cumulative impacts by protecting and eventually enhancing the riparian meadows along the river.

Cumulative impacts to fisheries habitat: If the Proposed Action Alternative were chosen for implementation, fence construction proposed under this alternative would increase the quantity and quality of fisheries habitat for native Redband trout and aquatic organisms in the North and South Forks of the Crooked River. Although riparian and stream channel conditions may be improved in the project area as a result of the proposed action, water temperature improvements (temperature decreases) would occur downstream of the project area. Improved riparian areas resulting from access control of livestock and wild horses would improve water quality downstream for fish habitat in two ways. First, streambanks would become more stable and produce less sediment to cover spawning gravels and create wide/shallow reaches down stream. Secondly, water flowing through more shaded reaches within the project area would absorb less solar radiation. Therefore, this water would maintain the same temperature it entered the project area with and would be more easily influenced by cooler water entering the project area in the forms groundwater and tributaries.

Cumulative impacts to fisheries habitat: The No-Action Alternative would result in no habitat improvements for native Redband trout or aquatic organisms. Livestock would continue to gain unregulated access to riparian areas. Annual access of livestock and wild horses into riparian areas would increase as existing points of access are repeatedly used and maintained by livestock and wild horses. As routes become maintained and more easily negotiated by livestock, greater numbers of animals would use them to gain access to riparian areas. As a result, riparian areas would not be allowed to improve and stream conditions would degrade further each year. Fish habitat as affected by sediment and increased water temperature through time, would be degraded.

Cumulative impacts to the North Fork WSA: For the purpose of this section, the geographic area of potential impacts includes the entire North Fork WSA. Any activity that could reduce the potential for wilderness designation is considered significant.

Other reasonably foreseeable developments that would contribute to cumulative impacts were not identified within the geographic area of interest. Additional fence structures would not combine with existing human-made structures in the WSA to result in cumulative impacts to wilderness values.

The narrow shape and relatively small size of the North Fork Crooked River WSA tend to concentrate visitors and any disturbance into a localized area, increasing the likelihood of impacts to wilderness values. Additional structures, combined with this tendency for visitors to recreate in the narrow, river corridor would result in a direct impact to naturalness. However, vegetative and topographic screening would mitigate this impact in most instances. Also, the ecological benefits of excluding grazing from the riparian corridor are consistent with IMP exceptions and current management plans.

Cumulative impacts to the Sand Hollow and South Fork WSAs: For the purpose of this section, the geographic area of potential impacts includes the combined area of the Sand Hollow and South Fork WSAs. Any activity that could reduce the potential for wilderness designation is considered significant.

Other reasonably foreseeable developments that would contribute to cumulative impacts were not identified within the geographic area of interest. Additional fence structures would not combine with existing human-made structures in the WSAs to result in adverse cumulative impacts to wilderness values.

Naturalness would continue to dominate the appearance of the landscape. The large size of the WSAs reduces the chances of a visitor encountering or even seeing the fencing. Visitors to the river corridor are most susceptible to impacts, as this is where construction would occur. However, fencing along the South Fork is not proposed to occur in close proximity to the river. Vegetative and topographic screening would further reduce the chance of seeing the fences. Also, the ecological benefits of controlling grazing within the riparian corridor make the Proposed Action consistent with IMP non-impairment exceptions and current management plans.

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7.0 LIST OF ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AML	Appropriate Management Levels
AUM	Animal Unit Month
BLM	Bureau of Land Management
DBH	Diameter at Breast Height
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
H-8550-1	Lands Under Wilderness Review
HA	Herd Area
HMA	Herd Management Area
I	Improve
IMP	Interim Management Policy
KOP	Key Observation Points
M	Maintain
NEPA	National Environmental Policy Act
NFCR	North Fork Crooked River
ODFG	Oregon Department of Fish and Game
OHV	Off-highway vehicle
ORV	Outstandingly Remarkable Value – Wild & Scenic River Value
RMP	Resource Management Plan
RNA	Research Natural Area
ROD	Record of Decision
SFCR	South Fork Crooked River
SVIM	Soil Vegetative Inventory Method
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
W.M.	Willamette Meridian
WSA	Wilderness Study Area

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9.0 APPENDICES

9.1 APPENDIX A - SOILS MAP AND TABLES

**Table 4: North Fork Fence Soil and Rangesite Information
(See Soil Map – North Fork)**

SOIL-VEG NO.	SOIL MAP UNIT NAME	RANGE SITE NAME	POTENTIAL COMMON PLANTS	MILES*	% OF FENCE LINE
1	Canest very cobbly clay loam, 1 to 8 percent slopes	Scabland	Sandberg bluegrass, bluebunch wheatgrass, one-spike oatgrass, a variety of forbs, low sage	0.42	17%
2	Westbutte loam, high precipitation, 3 to 30 percent slopes	Pine-Bunchgrass	ponderosa pine, Idaho fescue, bluebunch wheatgrass, a variety of forbs, a variety of shrubs	0.16	7%
3	Westbutte Variant loam, 3 to 40 percent slopes	Mixed Fir-Pine Forest	Doug-fir, grand fir, ponderosa pine, elk sedge, pinegrass, timothy, a variety of shrubs and forbs	0.28	11%
4	Lorella-Rock outcrop complex, 30 to 65 percent slopes	Juniper South Exposure	western juniper, bluebunch wheatgrass, Thurber's needlegrass, bottlebrush squirreltail, big sage, low sage	0.96	39%
5	Madeline stony loam, high precipitation, 30 to 65 percent slopes	Juniper-Pine-Bunchgrass	Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, a variety of forbs	0.63	26%

* Miles of fence includes new proposed fence construction and existing fence locations

Soil Map – North Fork

**Table 5: South Fork Fence Soil and Rangesite Information
(See Soil Map – South Fork)**

SOIL-VEG NO.	SOIL MAP UNIT NAME	RANGE SITE NAME(S)	POTENTIAL COMMON PLANTS	MILES*	% OF FENCE-LINE
1	Varco cobbly loam, 1 to 8 percent slopes	Clayey Terrace	perennial fescue, Sandberg bluegrass, low sage	0.03	2%
2	Decantel-Lerrow association, 1 to 10 percent slopes	Juniper Moist Rolling Hills; Juniper Clayey Upland	Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, low sage, big sage, western juniper	0.23	12%
3	Canest-Madeline complex, 1 to 8 percent slopes	Scabland; Scabland	Sandberg bluegrass, bluebunch wheatgrass, one-spike oatgrass, a variety of forbs, low sage	0.28	15%
4	Madeline stony loam, 3 to 30 percent slopes	Moist Rolling Hills	Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, a variety of forbs	0.11	6%
5	Mollisols-Rock outcrop complex, 30 to 65 percent south slopes	South Exposure	bluebunch wheatgrass, Sandberg bluegrass, Idaho fescue, Canby bluegrass, bitterbrush	0.43	23%
6	Mollisols-Rock outcrop complex, 30 to 65 percent north slopes	North Exposure	Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, big sage	0.81	43%

* Miles of fence includes new proposed fence construction and existing fence locations

Soil Map – South Fork

9.2 APPENDIX B - CONTRAST RATING FORMS AND KOP PHOTOS

9.3 APPENDIX C – BIOLOGICAL EVALUATION

9.4 APPENDIX D – BOTANICAL WAIVER

**9.5 APPENDIX E – RESPONSES TO SCOPING OR CONSULTATION WITH
GOVERNMENT ENTITIES OR TRIBES**